

# The Analysts Journal

VOLUME 13 : NUMBER 5



NOVEMBER 1957

## *In This Issue . . .*

### **Editorial**

An Invitation to Analysts . . . . .	Pierre R. Bretey	5
Contributors . . . . .		8

### **Articles**

Two Illustrative Approaches to Formula Valuations of Common Stocks . . . . .	Benjamin Graham	11
Quality vs. "Value" in Insurance Stock Selection . . . . .	F. W. E. Farr and William B. Eagleson	17
A Projection of Values . . . . .	Frank X. Kearney	21
Nickel—Competition Spurs Demand . . . . .	Philip J. FitzGerald and Orhan Sadik Khan	25
The Agricultural Equipment Industry . . . . .	Frank L. Turgeon	29
Consumers' Attitudes Towards Saving and Their Investment Preferences . . . . .	Eva Mueller	33
Are Stock Rights Obsolete? . . . . .	Norvin R. Greene	41
Collective Forecasting of Business Activity . . . . .	James Dowd	45
The Warrants or the Stock? . . . . .	Russell J. Morrison	51
Investment in Canadian Development Stocks . . . . .	Stephen A. Jarislowsky	55
Stock Is Worth What You Can Get Out of It . . . . .	Adolph E. Grunewald	61
The Three-Way Stretch of Leverage on Common Stock of Electric Utilities . . . . .	Bruce Hildebrandt	65
Depreciation—A Dynamic Force . . . . .	M. H. Earp	71
What Are the Investment Objectives of Private Pension Plans . . . . .	Robert E. Greeley	75
The Salesmanship Economy . . . . .	Lamar Coffin	79
Cars to Come . . . . .	L. K. Sillcox	83
The Airline Challenge—Pitfall or Opportunity . . . . .	Selig Altschul	91

### **Departments**

Book Reviews . . . . .	Helen Slade	98
------------------------	-------------	----

*Published by*

THE NATIONAL FEDERATION OF FINANCIAL ANALYSTS SOCIETIES



# 336 Thanksgivings ago

Distance meant danger . . .

Half a mile from the sheltering stockade was  
half a world away.

Today, Houston, Chicago or Manila are as close as  
your telephone. What other man-made miracle unites us  
so strongly? Or so effectively? Or so economically?

The slim, far flung wires of your telephone weave a web  
that holds the world together.



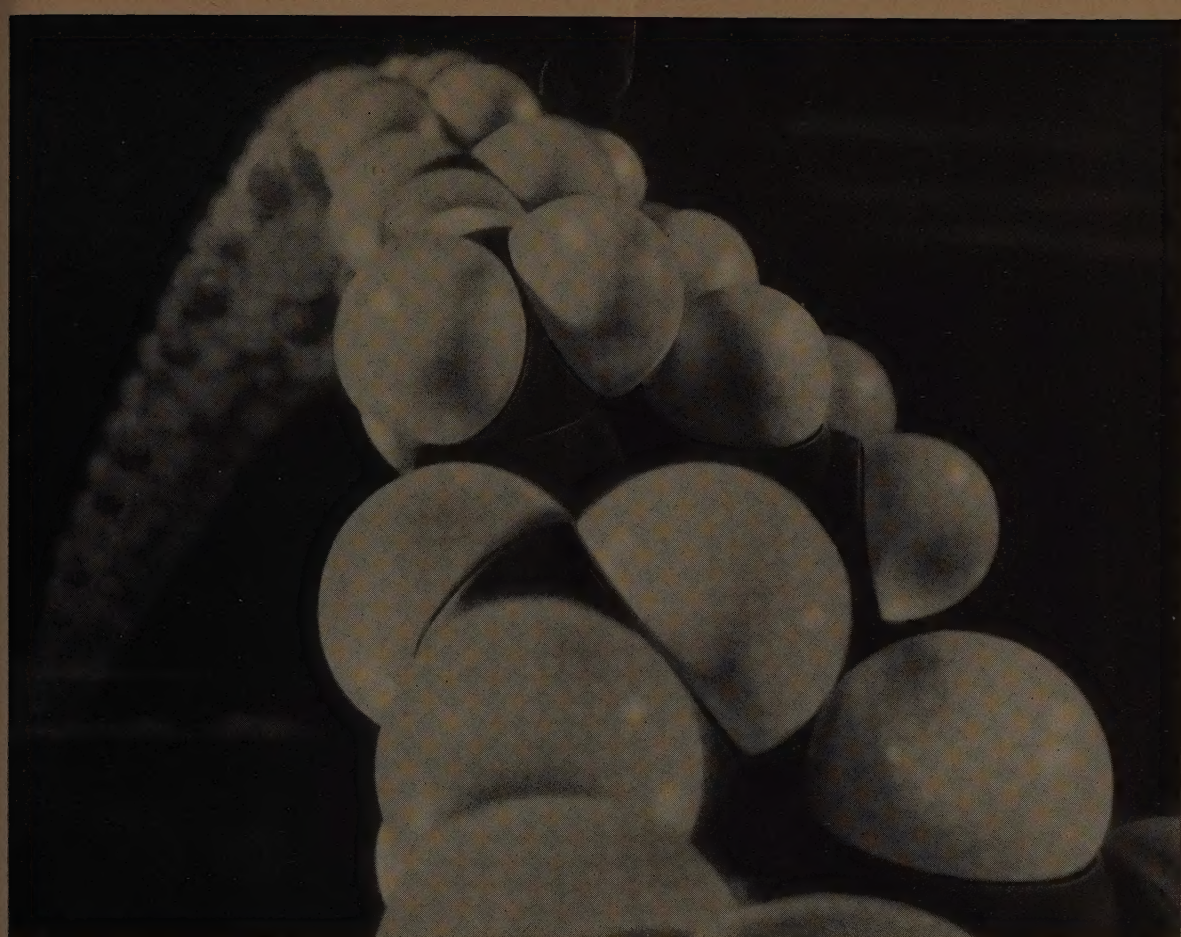
*Can't be home for Thanksgiving?  
Telephone. And call early to make sure  
your call gets through quickly.*



## GENERAL TELEPHONE SYSTEM

ONE OF AMERICA'S GREAT COMMUNICATIONS SYSTEMS • 260 MADISON AVENUE, NEW YORK, N. Y.





## HIGH POLYMERS . . . chemistry goes one up on nature



Linking single molecules into giant chains to produce materials with new properties and qualities is the function of polymer chemistry. These high polymers provide industry with new tools to make better and better products.

Such a material is the new Celanese plastic, Fortiflex—a polyolefin created by polymerizing ethylene gas. Controlled polymerization results in a closely packed molecular structure. This gives the material exceptional rigidity with great toughness . . . toughness that even withstands sterilization temperatures and the attack of corrosive chemicals.

There's scarcely an industry that won't benefit from the development of this exciting new Celanese plastic. Its properties open up a whole new world of improvement possibilities in appliance and equipment housings and parts, packaging, housewares, toys, chemical processing equipment, and monofilaments for textiles.

And continuing Celanese research in high polymers is developing a family of polyolefin plastics—new materials custom-fitted to the changing and growing needs of industry.

Another example of Celanese diversification and integration serving industry.

Celanese® Fortiflex®



# New Facts on The Steel Industry's Increasing Stability

Analyzed by Commercial Research  
Manager Philip J. Sandmaier,  
Republic Steel Corporation

Growth of the steel industry can be looked at two ways: by the increase in total steel production or by the increase in *per capita* steel production.

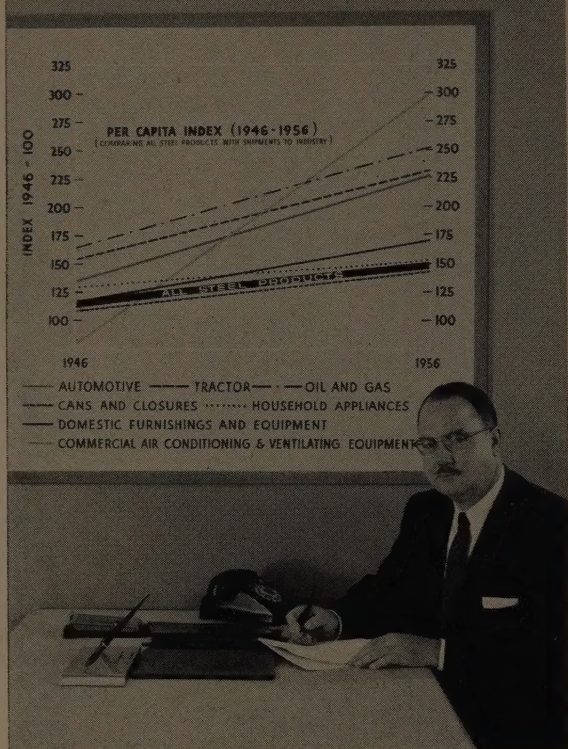
Usually the industry's growth is referred to only by the former measure, the increase in total tonnage. For example—since 1900 steel production has gone from 11.4 million ingot tons to over 117 million ingot tons annually. This statement is deceptive, however, because more production does not necessarily indicate the growth of the industry, as the word "growth" is applied in current investment parlance. Mere increase in population would have forced the steel industry to produce more steel. Such increase merely keeping pace with birth rate is not termed "growth".

However, if you examine production of steel *per capita*, you see the rate of gain has been far greater than the rate of population increase. This has been because the nature of steel use has changed, especially during the last decade and a half. In this change lies the factor of true growth within the industry for the long pull. The chart to the left breaks down the aspects of increased use of steel into their trends over the last fifty-five years.

## REPUBLIC STEEL CORPORATION

General Offices • Cleveland 1, Ohio

World's Most Diversified Producer of Steel Building Products  
World's Largest Manufacturer of Stainless and Alloy Steels  
World's Widest Range of Standard Steels and Steel Products



MARKETS MOST RESPONSIBLE FOR GAINS IN STEEL ARE ANALYZED BY F. RUSSELL WIDMER, Assistant Manager of Republic Steel's Commercial Research Division.

On the chart behind Mr. Widmer, the solid trend line represents the total tonnage of steel products during the years 1946 through 1956. This line details the last ten years of total steel production shown by the middle line on the opposite page.

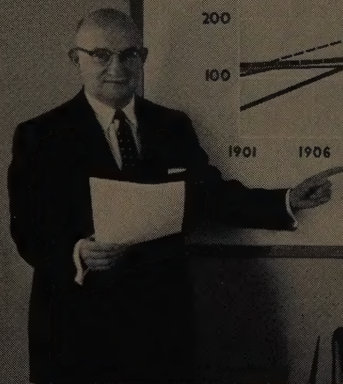
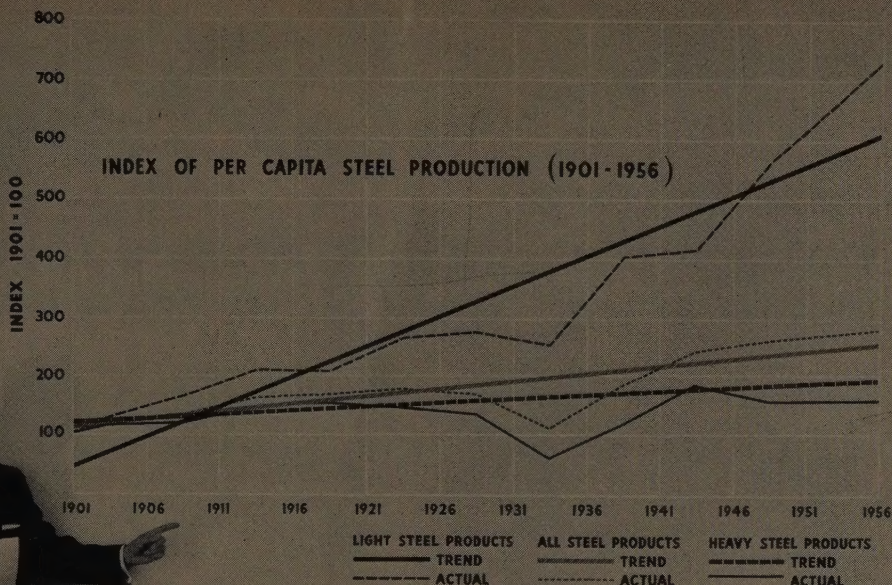
All the graph lines on this chart are trend lines.

Mr. Widmer has split out from the total, on separate lines, those markets that have contributed most to the gains in steel and which he forecasts will continue the upward curve. These lines represent percentage increase in per capita use since 1947. These increasing markets are: tractors, pipe and tubing, commercial air-conditioning and ventilating equipment, household appliances, and the automotive industry.

In general, the rising per capita consumption of heavy steel goods and the increasing numbers of automobiles can be expected to follow the population increase predictably. The faster rising curves, however, seem to be coming mainly from the other markets opening up for steel which call for disposable or relatively short-lived consumer goods. These users of lighter steel forms are tending to keep demand stable and account for this fundamental change toward lighter steel forms taking place in steel markets.

SOME OF THE PRODUCTS MADE BY REPUBLIC STEEL: Alloy, Carbon, Stainless Steels • Titanium • Bars • Plates • Sheets • Strip • Tin Plate • Tarn Plate • Cold Finished Steels • Steel and Plastic Pipe • Tubing • Bolts • Nuts • Rivets • Wire • Farm Fence • Nails • Pig Iron • Iron Powder • Coal Chemicals • Fabricated Steel Products • Steel Building Products • Steel and Aluminum Windows • Steel Kitchens • Shipping Containers • Materials Handling Equipment • Drainage Products





**PRODUCTION OF STEEL PER CAPITA, POINTED OUT BY PHILIP J. SANDMAIER**, Republic Steel's Commercial Research Manager, has increased from 300 pounds in 1900 to 1,400 pounds in 1956.

All steel production may be divided into two categories: the heavy—structurals, rails, for example; the light forms—sheet, strip, wire, for example. The heavy forms are mainly for the production of capital goods. The light forms are used in both capital and consumer type goods.

On the chart behind Sandmaier the per capita increase in pounds of steel from 1901 to 1956 is represented by the two middle lines. The per capita increase of light forms is represented by the top trend line with actual five year average shown dotted. The lowest lines of the graph show percentage increase in heavy forms.

From 1931 the light steel forms began to increase faster than the heavy and from 1946 to the present have climbed sharply.

Even during the Depression, when heavy steel items dipped with the rest of the economy, lighter steel items declined less and rose more sharply on the recovery.

The use of lighter steel forms for a widening range of consumer and capital goods items looks like a long-term stabilizing factor in the steel industry. Here is the trend which could lead to a leveling out of the old feast and famine pattern characteristic of steel in its early years.

The chart on the opposite page breaks down still further the upward trend of steel per capita which we believe generally is going to be characteristic over the coming decade.


**NORMAN W. FOY, VICE PRESIDENT IN CHARGE OF SALES**, (right) and Lawrence S. Hamaker, General Manager of Sales, (left) are shown conferring with William P. Carlin, Senior Economist in Republic Steel's Commercial Research Division. The Sales Department depends heavily on its twenty-five-man research staff for market information in making sales plans.

The Commercial Research Division does a wide variety of statistical and market analysis work for the guidance of sales management and sales force in the field. The Division charts long-time trends on the consumption of various types of steel by the major consuming industries. It forecasts probable trends in specific industries, charts population shifts, prepares reports on individual markets, highlights low profit items for individual study and, in fact, provides almost every kind of market information. By the use of this information, sales policies are established on the basis of known facts rather than on individual judgment.

The increased importance being placed on market development and commercial research by steel managers points toward the conviction that steelmen are in business to make a profit, not just to make steel.







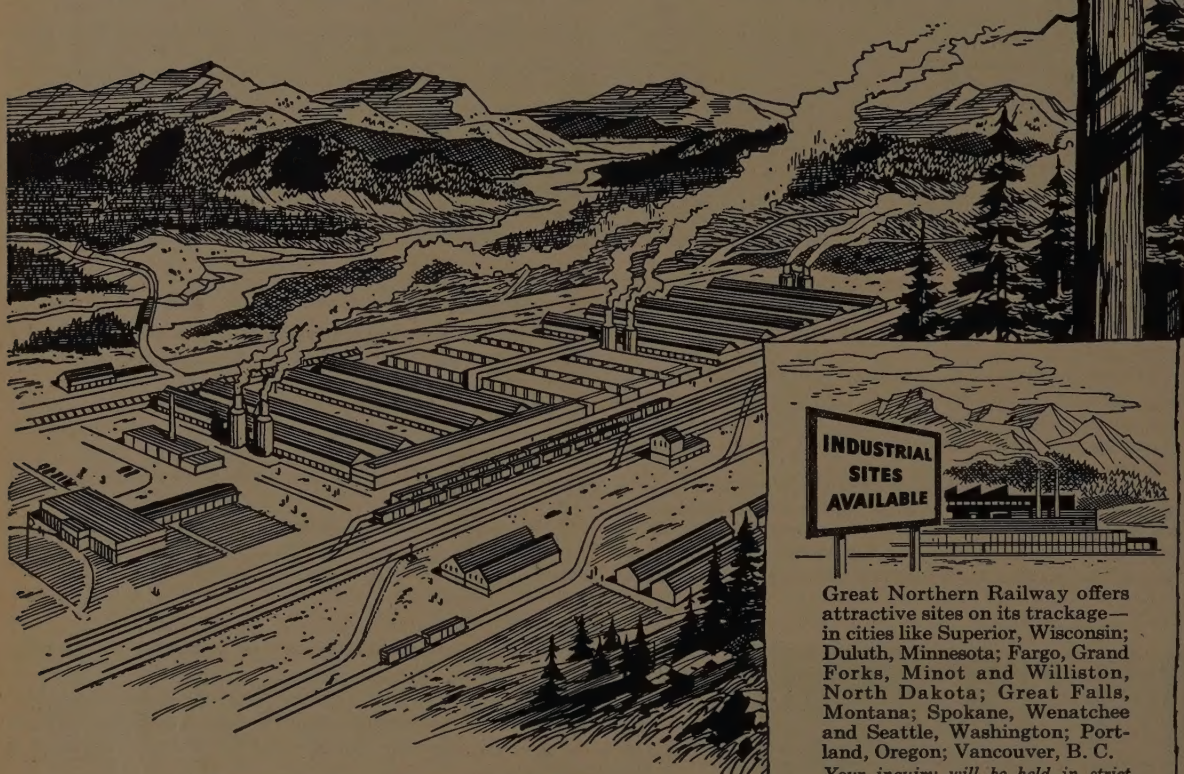
*Do you know why?*

## **One-third of all U. S. Aluminum is made along Great Northern's line**

Nearly 37% of all aluminum manufactured in this country is made along Great Northern's line across the top of the nation. Why? Well, abundant and economical power is an obvious answer. But power and manufacturing capacity are useless without efficient and dependable transportation.

Aluminum producers know that Great Northern is pre-eminently equipped to move ore into their mills—and to move ingots, sheets or rolled stock out to the market.

*For information on Freight services write W. E. Nicholson, General Freight Traffic Manager, Great Northern Railway, St. Paul 1, Minnesota.*



### **Travel Executive-style on GREAT NORTHERN'S incomparable EMPIRE BUILDER**

Travel completely carefree. Be sure of on-time arrival. Enjoy the matchless comforts of this fine streamliner between Chicago and Seattle-Portland. Great Dome seats, fine Pullman rooms, luxurious diner. Every day, each way. No extra fare.

*P. G. Holmes, Passenger Traffic Manager  
Great Northern Railway, St. Paul 1, Minnesota  
Offices in principal cities of U. S. and Canada*

**INDUSTRIAL  
SITES  
AVAILABLE**

Great Northern Railway offers attractive sites on its trackage—in cities like Superior, Wisconsin; Duluth, Minnesota; Fargo, Grand Forks, Minot and Williston, North Dakota; Great Falls, Montana; Spokane, Wenatchee and Seattle, Washington; Portland, Oregon; Vancouver, B. C.

*Your inquiry will be held in strict confidence. Write E. N. Duncan, Director, Industrial and Agricultural Development, Great Northern Railway, St. Paul 1, Minnesota.*





# The Analysts Journal

NOVEMBER  
1957

## *An Invitation to Analysts*

PIERRE R. BRETEY

*Editor*

HELEN SLADE

*Managing Editor*

JEREMY C. JENKS

SAMUEL B. JONES

GILBERT H. PALMER

*Associate Editors*

A. HAMILTON BOLTON

SHELBY CULLOM DAVIS

RUSSELL J. EDDY

EDWARD DOUGLAS HOWARD II

M. DUTTON MOREHOUSE

ROBERT J. WILKES

*Advisory Committee*

JOHN STEVENSON

*Business Manager*

GEORGE M. HANSEN

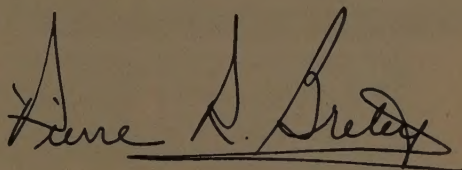
*Advertising Manager*

VOLUME 13  
NUMBER 5

MANY members who benefited by the information acquired and the scenery enjoyed while on the Special Train Tour of 1952 have requested that a similar trip be arranged preceding the Los Angeles Convention. For this reason the President and Executive Committee of the National Federation of Financial Analysts Societies have asked me to plan another such journey. It will begin at Chicago on May 13 and end there on May 30. Plants are to be visited and industries examined in Texas, Arizona, California, Oregon, Washington, and the entire Northwest. Not only will the members survey great industries, but they are to be pleasantly entertained. En route they will see the Grand Canyon, Yosemite Park, Grand Coulee, and other famed spots of beauty. Here there are to be stops of long enough duration to really enjoy the adventure.

Details have been carefully prepared. Hotel reservations for stops will be of the best, train accommodations of the most modern type. All particulars can be had from R. S. Caird, Burlington Lines, 1033 Grant Avenue, Kansas City, Mo., or from

Yours Sincerely,



THE ANALYSTS JOURNAL is published five times a year, in February, May, June, August, and November, by The National Federation of Financial Analysts Societies, a nonprofit voluntary association devoted to the interests of those engaged in investment management and, more specifically, in the profession of security analysis. Publication office: National Federation of Financial Analysts Societies Headquarters, 444 Madison Avenue, New York 22, N. Y. Re-entered as second-class matter March 4, 1953, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

COPYRIGHT 1957 by the National Federation of Financial Analysts Societies. Printed in the United States of America. Articles may be reprinted only by permission of the Editors.

EDITORIAL COMMUNICATIONS AND ARTICLES FOR PUBLICATION should be addressed to Helen Slade, managing editor, 400 East 57 Street, New York 22, N. Y. Neither the Federation nor the editorial staff is responsible for the facts or opinions contained in articles appearing in THE ANALYSTS JOURNAL.

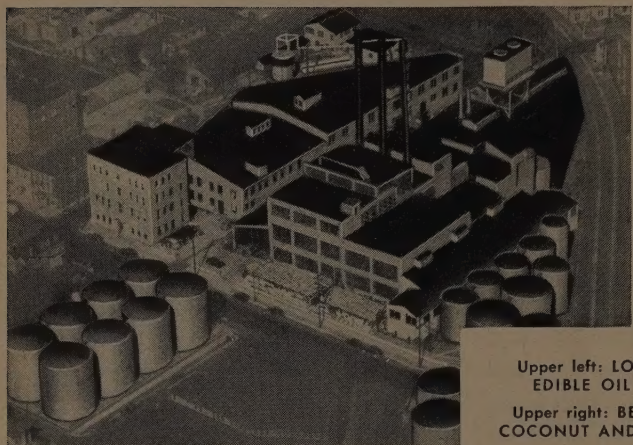
ADVERTISING: Address advertising communications, plates, etc., to Grant Webb & Company, 509 Madison Avenue, New York 22, N. Y. Phone Murray Hill 8-7350.

ANNUAL SUBSCRIPTION price for five issues \$5; foreign subscription \$5.50; single copies are \$1.50, foreign \$1.75. Checks should be drawn to the order of THE ANALYSTS JOURNAL and forwarded to 444 Madison Avenue, New York 22, N. Y.



# Glidden-Durkee

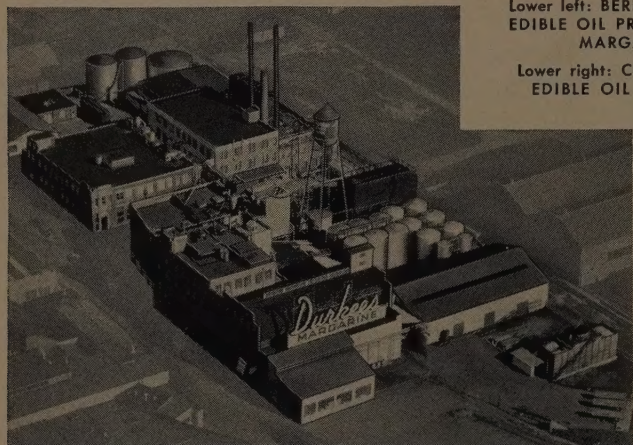
relocates plants to reduce fixed costs; adds



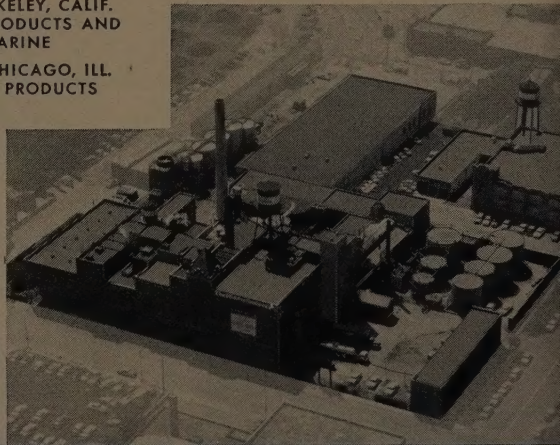
Upper left: LOUISVILLE, KY.  
EDIBLE OIL PRODUCTS



Upper right: BETHLEHEM, PA.  
COCONUT AND CONDIMENTS



Lower left: BERKELEY, CALIF.  
EDIBLE OIL PRODUCTS AND  
MARGARINE



Lower right: CHICAGO, ILL.  
EDIBLE OIL PRODUCTS

## THE STRUCTURE OF GLIDDEN DIVERSIFICATION MEANS GROWTH

Diversification is not new to The Glidden Company. Glidden was founded on the premise that planned diversification offers maximum opportunity for profit.

Management recognized that diversification of products, markets and facilities opened the widest door to growth. Diverse fields of operation were entered. Products within each operation were expanded through research and alertness to future needs. Markets

widened. Plant facilities were increased everywhere. This was also the period of integration of these seemingly unrelated operations.

Now, this structure of integrated diversification has been established. Glidden has attained its maturity, a position of stability demonstrated by its earnings. Each Glidden Division is a profitable, growing business, supplying other Glidden Divisions as well as selling to a wide variety of other industries, as indicated below.

### CHEMICALS-PIGMENTS-METALS

Pigments and Metal Powders  
for Industry

Paint  
Paper  
Plastics  
Rubber  
Appliance  
Ceramics  
Building Materials  
Transportation  
Marine  
Leather  
Glidden Paint Division

### SOUTHERN CHEMICAL

Naval Stores  
Terpene Chemicals; Resins

Paper  
Rubber  
Plastics  
Chemical  
Cosmetics  
Food  
Building Materials  
Essential Oil  
Paint  
Textile  
Pharmaceutical  
Soap and Detergent  
Glidden Paint Division

### PAINT

For Consumers; Product Finishes  
Industrial Maintenance  
All Surfaces

Consumer Paint Market  
Painter Trade  
Container  
Industrial Maintenance  
Automotive  
Appliance  
Construction  
Building Materials  
Furniture  
Transportation  
Boat and Marine  
Electronics  
Plastics

### CHEMURGY

Soybean Derivatives  
Grain Merchandising

Food  
Pharmaceutical  
Paint  
Packaging  
Building Materials  
Transportation  
Rubber  
Plastics  
Graphic Arts  
Paper  
Glidden Paint Division  
Durkee Famous Foods

### DURKEE FAMOUS FOODS

For Food Processors  
Restaurants; Consumers

Consumer Food Market  
Baking  
Confectionery  
Institutional Cooking  
Restaurant Trade  
Specialty Food



# makes profit moves;

production; invests \$500,000 in new equipment

One of the leading processors of edible oils, Durkee is also a recognized leader in supplying specialty products to the commercial food industry.

To better serve food manufacturers and the retail food trade—and to meet the growing demand for coconut, spices and flavorings—Durkee has recently moved its coconut and condiment production from Elmhurst, N. Y., to a new plant in Bethlehem, Pa. Here, Durkee is investing \$500,000 in additional processing and packaging equipment. With more efficient production, more capacity, and lower fixed costs, Durkee can now fully capitalize on its food sales acceptance in both the commercial and consumer fields.

Prior to this move, the Elmhurst vegetable oil refinery facilities had been transferred and combined with those at Louisville, Kentucky, resulting in more efficient production. In-transit freight rates provide for lower shipping costs into the Eastern markets, where the existing sales force will continue to be directed from sales offices in the East.

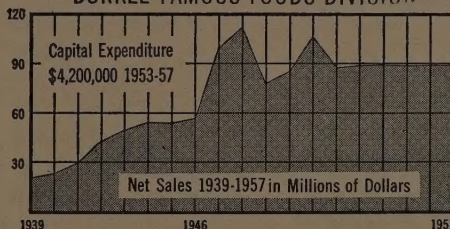


## THE GLIDDEN COMPANY

UNION COMMERCE BLDG. • CLEVELAND 14, OHIO

*Growing with the horizons of chemistry*

DURKEE FAMOUS FOODS DIVISION



Investments of \$4.2 million in the last 5 years include expenditures for new research facilities, additional production capacity, and plant relocations. These activities have already produced additional earnings.

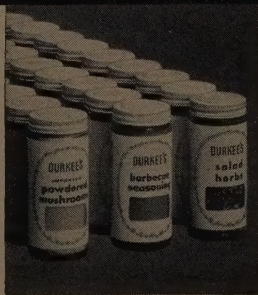
### How Glidden-Durkee maintains position of leadership in the food business



In a matter of minutes, today's homemaker can prepare a whole meal, from rolls to dessert, thanks to Durkee ingredients specially formulated to help make possible a growing list of quick-convenience foods.



**Where bakers go to school:** Durkee Famous Foods Division laboratories in Chicago are not only a testing center, but a training and research service for Durkee customers in the food industries.



**New taste sensations.** Eighteen recently introduced Durkee Gourmet Seasonings range from Powdered Mushrooms to Barbecue Seasoning and Salad Herbs . . . meet housewives' growing demand for unusual flavorings.



**Coconut has to be fresh and moist to sell!** And Durkee's Snowflake Coconut is, always, because of the exclusive Durkee sealed-in-moisture foil bag. Result: broader trade acceptance and growing sales.



# Contributors

## Officers

GILBERT H. PALMER  
*President*

L. HARTLEY SMITH  
*Executive Vice-President*

GEORGE M. HANSEN  
*Treasurer*

## Executive Committee

GILBERT H. PALMER, *Chairman*

SHELBY CULLOM DAVIS

GEORGE M. HANSEN

M. DUTTON MOREHOUSE

L. HARTLEY SMITH

ROBERT J. WILKES

## Committee Chairmen

GEORGE M. SHANNON  
*Admissions*

PIERRE R. BRETEY  
*Analysts Journal*

JOHN HARDY WEEDON  
*Constitution*

RICHARD W. LAMBOURNE  
*Convention*

WILLIAM W. WOLBACH  
*Corporate Information*

JAMES McNAB  
*Directory*

MERWIN H. WATERMAN  
*Education*

M. DUTTON MOREHOUSE  
*Government Relations*

JEREMY C. JENKS  
*Insurance*

HELEN SLADE  
*Placement*

A. MOYER KULP  
*Professional Ethics  
and Standards*

WILLIAM C. NORBY  
*Board of Regents, Invest-  
ment Analysts Seminar*

LAMAR COFFIN is an outstanding economist and authority on the underconsumption approach to our "salesmanship economy." His interest lies in understanding the selling and distribution costs of modern industry. Articles of his have appeared in a great many periodicals.

JAMES DOWD is a graduate of the Columbia School of Business. He has been with Air Reduction Company since 1945, where he is manager of Market Research.

WILLIAM B. EAGLESON was formerly insurance specialist of the Girard Trust Corn Exchange Bank, and is now head of their Pension Fund Division. His knowledge of pension problems makes him an expert in that field.

M. H. EARP is in the Trust Department of the Mercantile National Bank at Dallas, Texas. He is an authority on valuation.

F. W. E. FARR is vice president in charge of research of the Girard Trust Corn Exchange Bank of Philadelphia. He is author of articles on the selection of shares, and lecturer on investment problems. Mr. Farr has been president of the Financial Analysts of Philadelphia.

PHILIP J. FITZGERALD, partner of Dean Witter & Co., directs the research for all their offices. He is a writer and lecturer of great distinction.

BENJAMIN GRAHAM, expert on corporation valuation, is the author of several books on investment analysis and investment appraisal. He has taught at Columbia University, and is now lecturing at the University of Southern California. Mr. Graham is one of the most outstanding authorities on investment analysis.

ROBERT E. GREELEY is a financial analyst specializing in banking and finance. He has devoted much time to the study of investment objectives of pension plans.

NORVIN R. GREENE, partner of Lancaster and Norvin Greene, has done considerable research on the value of Stock Rights. His studies include investment policies of both modern and ancient times.



# to This Issue

**ADOLPH E. GRUNEWALD** is assistant professor of finance at the College of Business of Michigan State University. His researches have been largely in the field of stock trends and evaluations.

**BRUCE HILDEBRANDT** is the name used by an investment director of one of the larger American institutions.

**STEPHEN A. JARISLOWSKY** is senior partner of Jarislowsky, Brown & Co. of Montreal, Canada. He is expert in knowing details of Canadian securities and their future potentials. As editor of Financial Publications he is constantly writing on this subject.

**FRANK X. KEANEY** has been president of the St. Louis Society of Financial Analysts. He has written for several financial journals and is engaged in doing research for G. H. Walker of St. Louis.

**ORHAN SADIK KHAN** of Dean Witter & Co., San Francisco, has done a great amount of work on research and the understanding of the worth of nickel. He is a specialist in the evaluation of metal shares.

**RUSSELL J. MORRISON** is analyst for Mills, Spence & Co., Toronto, Canada. He studied at the Universities of Saskatchewan, Toronto, and Chicago. He has been an economist for the Canadian Government and has taught at Vanderbilt University.

**EVA MUELLER**, of the Survey Research Center of the University of Michigan, is assistant to George Katona, and specialist in factors and motives determining consumer spending.

**L. K. SILLCOX**, honorary chairman of the board of the New York Air Brake Company, is a top authority on railroad subjects. His articles are of interest to all railroad specialists and to financial analysts.

**FRANK L. TURGEON** is industry specialist for Keystone Custodian Funds, Inc. He is instructor of finance in the Graduate School of Business Administration, Northeastern University, and has taught at Fordham University, Rutgers University and Boston University.

## Vice-Presidents

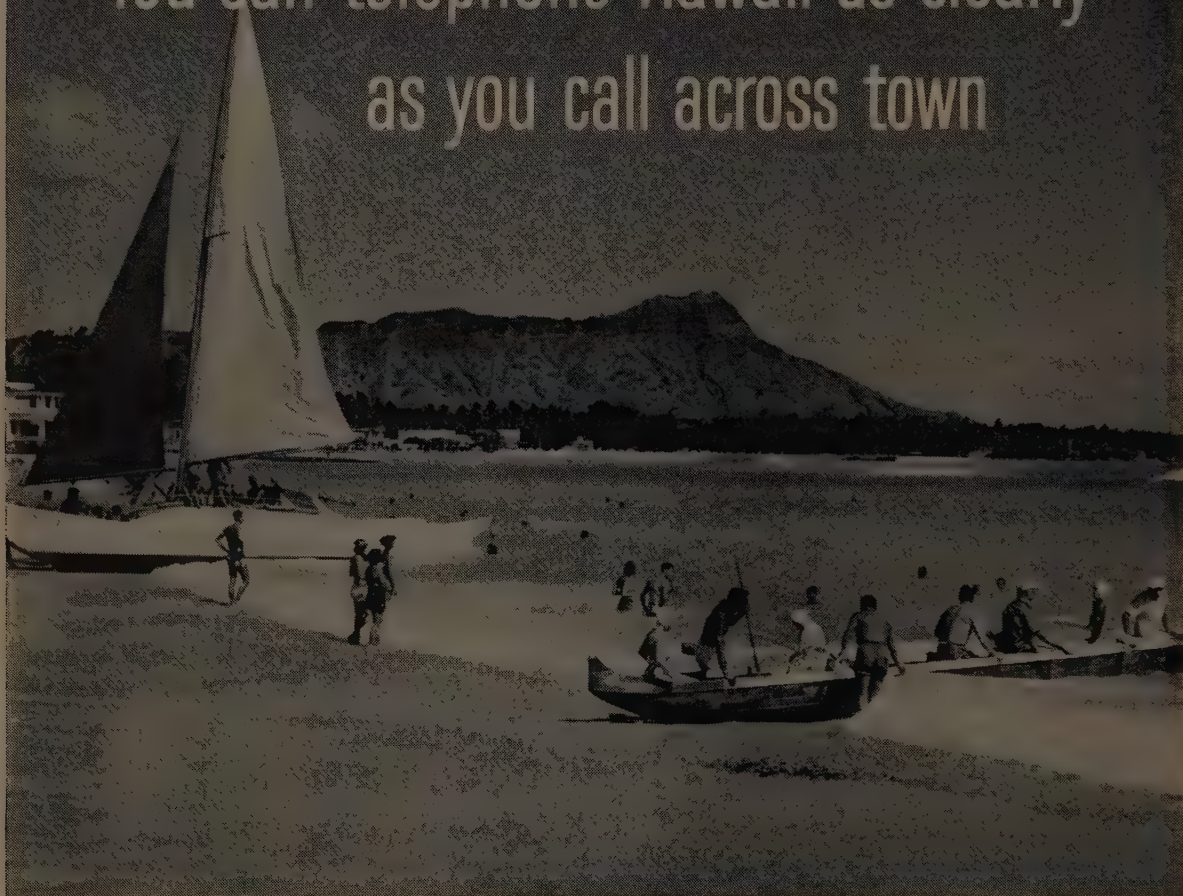
CHARLES T. BAUER  
THOMAS JOHNSON  
STANFORD O. EGE  
D. C. ELLIOTT  
GEORGE S. ROOKER  
GEORGE B. FISHER  
LAWRENCE M. GOODSPEED  
HAL KENNEDY  
L. HARTLEY SMITH  
J. R. PETRIE  
GEORGE H. NORTON, JR.  
OSBORNE R. ROBERTS  
WILLARD B. VAN HOUTEN  
WALTER W. CRAIGIE  
HENRY T. MAJGREN  
J. F. HALLETT  
H. TAYLOR PEERY  
ALBERT G. LANG  
GEORGE C. POWER, JR.  
NELSON J. FOSTER

## Societies

THE BALTIMORE SECURITY ANALYSTS SOCIETY  
THE BOSTON SECURITY ANALYSTS SOCIETY  
THE INVESTMENT ANALYSTS SOCIETY OF CHICAGO  
THE CLEVELAND SOCIETY OF SECURITY ANALYSTS  
THE DALLAS ASSOCIATION OF INVESTMENT ANALYSTS  
DENVER SOCIETY OF SECURITY ANALYSTS  
THE FINANCIAL ANALYSTS SOCIETY OF DETROIT  
KANSAS CITY SOCIETY OF FINANCIAL ANALYSTS  
THE LOS ANGELES SOCIETY OF SECURITY ANALYSTS  
MONTREAL INSTITUTE OF INVESTMENT ANALYSTS  
THE NEW YORK SOCIETY OF SECURITY ANALYSTS  
OMAHA-LINCOLN SOCIETY OF FINANCIAL ANALYSTS  
FINANCIAL ANALYSTS OF PHILADELPHIA  
THE PROVIDENCE SOCIETY OF FINANCIAL ANALYSTS  
THE RICHMOND SOCIETY OF FINANCIAL ANALYSTS  
THE ROCHESTER SOCIETY OF INVESTMENT ANALYSTS  
THE ST. LOUIS SOCIETY OF FINANCIAL ANALYSTS  
THE SECURITY ANALYSTS OF SAN FRANCISCO  
THE SECURITY ANALYSTS ASSOCIATION OF TORONTO  
TWIN CITIES SOCIETY OF SECURITY ANALYSTS  
THE WASHINGTON SOCIETY OF INVESTMENT ANALYSTS



# You can telephone Hawaii as clearly as you call across town



Waikiki Beach in Honolulu

## New underseas telephone cables now link United States mainland and the Hawaiian Islands

Another historic advance in communication service has just been completed.

For years you have been able to call Hawaii by *radiotelephone*. Now new telephone *cables* have been added, stretching for 2,400 miles under the Pacific Ocean, connecting the United States mainland and Hawaii.

Added to the present radiotelephone circuits, the new cable system provides more and faster and better service. It makes it possible for you to telephone to and from the Hawaiian Islands as clearly as you call across your own home town. Just give the operator your call.

Bell Telephone System



### KNITTING THE WORLD TOGETHER

The original certificate of incorporation, American Telephone and Telegraph Co., February 28, 1885, includes these prophetic words: ". . . and each and every of said cities, towns and places is to be connected with each and every other city, town or place in said states and countries, and also by cable and other appropriate means with the rest of the known world as may hereafter become necessary or desirable . . ."



# Two Illustrative Approaches to Formula Valuations of Common Stocks

BENJAMIN GRAHAM

OF THE VARIOUS BASIC APPROACHES to common-stock valuation, the most widely accepted is that which estimates the average earnings and dividends for a period of years in the future and capitalizes these elements at an appropriate rate. This statement is reasonably definite in form, but its application permits of the widest range of techniques and assumptions, including plain guesswork. The analyst has first a broad choice as to the future period he will consider; then the earnings and dividends for the period must be estimated, and finally a capitalization rate selected in accordance with his judgment or his prejudices. We may observe here that since there is no *a priori* rule governing the number of years to which the valuer should look forward in the future, it is almost inevitable that in bull markets investors and analysts will tend to see far and hopefully ahead, whereas at other times they will not be so disposed to "heed the rumble of a distant drum." Hence arises a high degree of built-in instability in the market valuation of growth stocks, so much so that one might assert with some justice that the more dynamic the company the more inherently speculative and fluctuating may be the market history of its shares.<sup>1</sup>

When it comes to estimating future earnings few analysts are willing to venture forth, Columbus-like, on completely uncharted seas. They prefer to start with known quantities—e.g., current or past earnings—and process these in some fashion to reach an estimate for the future. As a consequence, in security analysis the past is always being thrown out of the window of theory and coming in again through the back door of practice. It would be a sorry joke on our profession if all the elaborate data on past operations, so industriously collected and so minutely analyzed, should prove in the end to be quite unrelated to the real determinants of the value—the earnings and dividends of the future.

Undoubtedly there are situations, not few perhaps, where this proves to be the rueful fact. But in most cases the relationship between past and future proves significant enough to justify the analyst's preoccupation with the statistical record. In fact the daily work of our practitioner consists largely of an effort to construct a plausible picture of a company's future from his study of its past performance, the latter phrase inevitably suggesting similar intensive studies carried on by devotees of a very different discipline. The better the analyst he is, the less he confines

1. On this point the philosophically inclined are referred to the recent article of David Durand on "Growth Stocks and the Petersburg Paradox", in the September 1957 issue of the *Journal of Finance*. His conclusion is "that the growth-stock problem offers no great hope of a satisfactory solution."

himself to the published figures and the more he adds to these from his special study of the company's management, its policies, and its possibilities.

The student of security analysis, in the classroom or at home, tends to have a special preoccupation with the past record as distinct from an independent judgment of the company's future. He can be taught and can learn to analyze the former, but he lacks a suitable equipment to attempt the latter. What he seeks, typically, is some persuasive method by which a company's earnings record—including such aspects as the average, the trend or growth, stability, etc.—plus some examination of the current balance sheet, can be transmuted first into a projection of future earnings and dividends, and secondly into a valuation based on such projection.

A closer look at this desired process will reveal immediately that the future earnings and dividends need not be computed separately to produce the final value. Take the simplest presentation:

- (1) Past earnings times X equal future earnings.
- (2) Future earnings times Y equal Present Value.

This operation immediately foreshortens to:

- (3) Past Earnings times XY equal Present Value.

It is the XY factor, or multiplier of past earnings, that my students would dearly love to learn about and to calculate. When I tell them that there is no dependable method of finding this multiplier they tend to be incredulous or to ask, "What good is security analysis then?" They feel that if the right weight is given to all the relevant factors in the past record, at least a reasonably good present valuation of a common stock can be produced, one that will take probable future earnings into account and can be used as a guide to determine the attractiveness or the reverse of the issue at its current market price.

In this article I propose to explain two approaches of this kind which have been developed in a Seminar on Common-Stock Valuation. I believe the first will illustrate reasonably well how formula operations of this kind may be worked out and applied. Ours is an endeavor to establish a comparative value in 1957 for each of the 30 stocks in the Dow-Jones Industrial Average, related to a base valuation of 400 and 500, respectively, for the composite or group. (The 400 figure represented the approximate "Central Value" of the Dow-Jones Average, as found separately by a whole series of formula methods derived from historical relationships. The 500 figure represented about the average market level for the preceding twelve months.)

As will be seen, the valuations of each component issue



take into account the four "quality elements" of profitability, growth, stability and dividend pay-out, applying them as multipliers to the average earnings for 1947-1956. In addition, and entirely separately, a weight of 20% is given to the net asset value.

The second approach is essentially the reverse of that just described. Whereas the first method attempts to derive an independent value to be compared with the market price, the second starts with the market price and calculates therefrom the rate of future growth expected by the market. From that figure we readily derive the earnings expected for the future period, in our case 1957-1966, and hence the multiplier for such future earnings implicit in the current market price.

The place for detailed comment on these calculations is after they have been developed and presented. But it may be well to express the gist of my conclusions at this point, viz.:

(1) Our own "formula valuations" for the individual stocks, and probably any others of the same general type, have little if any utility in themselves. It would be silly to assert that Stock A is "worth" only half its market price, or Stock B twice its market price, because these figures result from our valuation formula.

(2) On the other hand, they may be suggestive and useful as composite reflections of the past record, taken by itself. They may even be said to represent what the value would be, assuming that the future were merely a continuation of past performances.

(3) The analyst is thus presented with a "discrepancy" of definite magnitude, between formula "value" and the price, which it becomes his task to deal with in terms of his superior knowledge and judgment. The actual size of these discrepancies, and the attitude that may possibly be taken respecting them, are discussed below.

Similarly, the approach which starts from the market price, and derives an implied "growth factor" and an implied multiplier therefrom, may have utility in concentrating the analyst's attention on just what the market seems to be expecting from each stock in the future, in comparison or contrast with what it actually accomplished in the past. Here again his knowledge and judgment are called upon either to accept or reject the apparent assumptions of the market place.

*Method 1. A Formula Valuation Based Solely on Past Performance in Relation to the Dow-Jones Industrial Average as a Group.*

The assumptions underlying this method are the following:

(1) Each component issue of the Dow-Jones Industrial Average may be valued in relation to a base value of the average as a whole by a comparison of the statistical records.

(2) The data to be considered are the following:

(a) *Profitability*—as measured by the rate of return on invested capital. (For convenience this was computed only for the year 1956.)

(b) *Growth of per-share earnings*—as shown by two

measurements: 1947-56 earnings vs. 1947 earnings, and 1956 earnings vs. 1947-56 earnings.

(It would have been more logical to have used the 1954-56 average instead of the single year 1956, but the change would have little effect on the final valuations.)

(c) *Stability*—as measured by the greatest shrinkage of profits in the periods 1937-1938 and 1947-1956.

(The calculation is based on the percentage of earnings retained in the period of maximum shrinkage.)

(d) *Pay-out*—as measured by the ratio of 1956 dividends to 1956 earnings. In the few cases where the 1956 earnings were below the 1947-56 average we substituted the latter for the former, to get a more realistic figure of current pay-out.

These criteria demonstrate the quality of the company's earnings (and dividend policy) and thus may control the multiplier to be applied to the earnings. The figure found under each heading is divided by the corresponding figure for the Dow-Jones group as a whole, to give the company's relative performance. The four relatives were then combined on the basis of equal weights to give a final "quality index" of the company as against the over-all quality of the group.

The rate of earnings on invested capital is perhaps the most logical measure of the success and quality of an enterprise. It tells how productive are the dollars invested in the business. In studies made in the relatively "normal" market of 1953 I found a surprisingly good correlation between the profitability rate and the price-earnings ratio, after introducing a major adjustment for the dividend pay-out and a minor (moderating) adjustment for net asset value.

It is not necessary to emphasize the importance of the growth factor to stock-market people. They are likely to ask rather why we have not taken it as the major determinant of quality and multipliers. There is little doubt that the expected future growth is in fact the major influence upon current price-earnings ratios, and this truth is fully recognized in our second approach, which deals with growth expectations as reflected in market prices. But the correlation between market multipliers and past growth is by no means close.

Some interesting figures worked out by Ralph A. Bing show this clearly.<sup>2</sup> Dow Chemical, with per-share earnings growth of 31% (1955 vs. 1948) had in August 1956 a price-earnings ratio of 47.3 times 1955 earnings. Bethlehem Steel, with corresponding growth of 93%, had a multiplier of only 9.1. The spread between the two relationships is thus as wide as fourteen to one. Other ratios in Mr. Bing's table show similar wide disparities between past growth and current multipliers.

It is here that the stability factor asserts its importance. The companies with high multipliers may not have had the best growth in 1948-55, but most of them had greater than average stability of earnings over the past two decades.

These considerations led us to adopt the simple arith-

2. "Can We Improve Methods of Appraising Growth Stocks?" by R. A. Bing, Commercial and Financial Chronicle, Sept. 13, 1956. Table on p. 24.



metrical course of assigning equal weight to past growth, past stability, and current profitability in working out the quality coefficient for each company. The dividend payout is not strictly a measure of quality of earning power, though in the typical case investors probably regard it in some such fashion. Its importance in most instances is undeniable, and it is both convenient and plausible to give it equal weight and similar treatment with each of the other factors just discussed.

Finally we depart from the usual Wall Street attitude and assign a weight of 20% in the final valuation to the net assets per share. It is true that in the typical case the asset value has no perceptible influence on current market price. But it may have some long-run effect on future market price, and thus it has a claim to be considered seriously in any independent valuation of a company. As is well known, asset values invariably play some part, sometimes a fairly important one, in the many varieties of legal valuations of common stocks, which grow out of tax cases, merger litigation, and the like. The basic justification for considering asset value in this process, even though it may be ignored in the current market price, lies in the possibility of its showing its weight later, through competitive developments, changes in management or its policies, merger or sale eventuality, etc.

The above discussion will explain, perhaps not very satisfactorily, why the four factors entering into the quality rating and the fifth factor of asset value were finally assigned equal weight of 20% each.

The actual application of our illustrative method can now be explained by working through the figures for the first company in the group, Allied Chemical & Dye. Following are data used in computing the "value" of ACD relative to a 400 and a 500 valuation for the Dow-Jones Industrial Average:

	D. J. Ind. Av.	Allied C. & D.	"Quality" Factors: Ratio of ACD to D.J.
Earned per share 1956	\$36.00	\$ 4.74	
1947-56	27.50	4.50	
1947-49	21.80	3.73	
1938 (unadjusted)	6.01	5.92	
1937 "	11.49	11.19	
Dividends 1956	23.15	3.	
Net Asset Value 1956	275.	40.	
<b>Profitability:</b>			
1956 earnings/1956 net assets	13.0%	11.85%	91%
Growth-A: 1947-56 vs. 1947-9	26%	21%	
B: 1956 vs. 1947-56	30%	5%	
A plus B.	56%	26%	46%
<b>Stability:</b>			
1938 earnings/1937 earnings	52.3%	53%	101%
<b>Payout:</b>			
1956 dividend/1956 earnings	64.3%	64%	100%
Average of four Quality Factors			84%

Formula to produce value of 400 for D.J. Ind. Av.:  
 "Value" equals  $1/5$  Net Assets plus  $12.5 \times 1947-56$  earnings  
 or  $55$  plus  $12.5 \times 27.50$   
 or 400.  
 Corresponding "Valuation" of Allied Chem. & Dye, (including Quality Factor of 84%):

Value equals  $1/5 \times 40$  plus  $.84 \times 12.5 \times 4.50$   
 or 55.

Formula to produce value of 500 for D.J. Ind. Av.:

Value equals  $1/5$  Net Assets plus  $16.2 \times 1947-56$  earnings  
 or 500.

Corresponding "Valuation" of Allied Chem. & Dye:  
 Value equals  $1/5 \times 40$  plus  $.84 \times 16.2 \times 4.50$   
 or 69.

In Table I we supply the "valuation" reached by this method for each of the 30 stocks in the Dow Jones Industrial Average. Our table includes the various quality factors, the average earnings, and the asset values used to arrive at our final figures.

In about half the cases these "valuations" differ quite widely from the prices ruling on August 5 last, on which date the D. J. Average actually sold at 500. Seven issues were selling at 20% or more above their formula value, and an equal number at 20% or more below such value. At the extremes we find Westinghouse selling at a 100% "premium," and United Aircraft at about a 50% "discount." The extent of these disparities naturally suggests that our method is technically a poor one, and that more plausible valuations could be reached—i.e., ones more congruous with market prices—if a better choice were made of the factors and weights entering into the method.

A number of tests were applied to our results to see if they could be "improved" by some plausible changes in the technique. To give these in any detail would prolong this report unnecessarily. Suffice it to say that they were unproductive. If the asset-value factor had been excluded, a very slight change would have resulted in favor of the issues which were selling at the highest premium over their formula value. On the other hand, if major emphasis had been placed on the factor of past growth, some of our apparently undervalued issues would have been given still larger formula values; for Table I shows that more of the spectacular growth percentages occur in this group than in the other—e.g., United Aircraft, International Nickel, and Goodyear.

It is quite evident from Table I that the stock market fixes its valuation of a given common stock on the basis not of its past statistical performance but rather of its expected future performance, which may differ significantly from its past behavior. The market is, of course, fully justified in seeking to make this independent appraisal of the future, and for that reason any automatic rejection of the market's verdict because it differs from a formula valuation would be the height of folly. We cannot avoid the observation, however, that the independent appraisals made in the stock market are themselves far from infallible, as is shown in part by the rapid changes to which they are subject. It is possible, in fact, that they may be on the whole a no more dependable guide to what the future will produce than the "values" reached by our mechanical processing of past data, with all the latter's obvious shortcomings.

Let us turn now to our second mathematical approach, which concerns itself with future growth, or future earnings, as they appear to be predicted by the market price itself. We start with the theory that the market price of a representative stock, such as any one in the Dow-Jones group,



reflects the earnings to be expected in a future period, times a multiplier which is in turn based on the percentage of future growth. Thus an issue for which more than average growth is expected will have this fact shown to a double degree, or "squared," in its market price—first in the higher figure taken for future earnings, and second in the higher multiplier applied to those higher earnings.

We shall measure growth by comparing the expected 1957-66 earnings with the actual figures for 1947-56. Our basic formula says, somewhat arbitrarily, that where no growth is expected the current price will be 8 times both 1947-56 earnings and the expected 1957-66 earnings. If growth  $G$  is expected, expressed as the ratio of 1957-66 to 1947-56 earnings, then the price reflects such next decade earnings multiplied by 8 times  $G$ .

From these assumptions we obtain the simple formula:

$$\text{Price equals } (E \times G) \times (8 \times G), \text{ or } 8G^2 \times E, \\ \text{where } E \text{ is the per-share earnings for 1947-56.}$$

To find  $G$ , the expected rate of future growth, we have only to divide the current price by 8 times 1947-56 earnings, and take the square root.

When this is done for the Dow-Jones Average as a whole, using its August 5, 1957, price of 500, we get a value of 1.5 for  $G$ —indicating an expected growth of 50% for 1957-66 earnings vs. the 1947-56 actuality. This

anticipates an average of \$41 in the next decade, as against \$27.50 for the previous ten years and about \$36 in 1956. This estimate appears reasonable to the writer in relation to the 500 level. (In fact he started with this estimate and worked back from it to get the basic multiplier of 8 to be applied to issues with no expected growth.) The price of 500 for the D. J. Average would represent in turn a multiplier of  $8 \times 1.5$ , or 12, to be applied to the expected future earnings of \$41. (Incidentally, on these assumptions the average current formula value of about 400 for the Dow-Jones Average would reflect expectations of a decade-to-decade growth of 35%, average earnings of \$37.1 for 1957-66, and a current multiplier of 10.8 for such future earnings.)

In Table II we set forth the results of applying this second approach to the 30 Dow-Jones issues. (The figures for Am. Tel. & Tel. might well be ignored, since utility issues should take a different basic formula.) The main interest in the table lies in the disparities it indicates between the expected future growth, implicit in the market prices, and the actual growth during the past decade. Ten of the companies (plus ATT) sold at prices anticipating at least twice the Dow-Jones Average rate of growth, comparing 1957-66 with 1956. Of these only two, Du Pont and General Electric, had actually shown distinctly better than average growth in the last ten years. Conversely, eight of

Table I  
Formula Valuations of Dow-Jones Industrial Issues

Company	Quality Factors				Av. Factor	Earns. 1947-1956	Book Value	Indicated Value		Price Aug. 5 1957
	Profitability	Growth	Stability	Payout				D.J. 400 Basis	D.J. 500	
Allied Ch.	91	46	94	100	84	4.50	40	55	69	89
Am. Can.	81	70	137	107	99	2.61	28	39	48	44
Am. S. & Ref.	101	39	100	81	80	5.43	51	65	85	54
Am. T. & T.	54	40	163	130	97	9.90	150	151	185	173
Am. Tob.	98	27	111	104	85	6.58	59	82	102	72
Beth. St.	95	138	0	97	83	2.88	31	36	45	49
Chrysler	*91	0	38	51	45	8.15	74	66	80	77
Corn. Prod.	100	65	114	98	94	1.96	40	31	37	31
Du Pont	154	198	100	109	140	5.60	41	107	136	199
East. Kod.	136	100	148	85	117	3.49	28	57	63	104
Gen. Elec.	139	129	84	127	120	1.87	14	31	39	68
Gen. Foods	138	99	141	79	114	2.42	20	39	49	49
Gen. Motors	160	119	95	104	120	2.48	20	42	53	45
Goodyear T.	108	207	129	83	132	4.18	43	78	98	76
Int. Harv.	*58	0	91	98	62	3.70	49	39	47	35
Int. Nickel	164	263	119	90	159	3.86	31	83	105	92
Int. Paper	100	46	0	101	62	6.40	55	61	76	101
Johns Man.	93	96	44	100	83	3.07	29	38	47	45
Nat. Dist.	*73	0	62	118	63	2.47	26	25	31	26
Nat. Steel	95	96	101	88	95	5.71	68	79	99	75
Proc. & Gam.	110	46	105	103	91	2.61	21	34	42	49
Sears Roe.	112	56	144	84	99	1.82	15	26	32	28
S. O. Cal.	124	113	134	65	109	3.09	24	47	59	58
S. O. N. J.	130	166	97	80	118	2.85	24	47	59	67
Texas Corp.	126	171	81	66	111	3.48	34	56	70	74
Un. C. & C.	138	92	108	100	110	3.73	27	53	67	117
Un. Aircr.	158	361	181	66	192	3.65	35	96	121	62
U. S. Steel	99	239	0	67	101	3.51	47	54	67	69
Westinghouse	*65	0	0	83	37	3.79	43	27	32	64
Woolworth	*69	0	116	109	74	3.58	40	41	51	42
D.J. Ind. Av.	(13.0)	(56)	(52.3)	(64.3)	100	27.50	275	400	500	500

\*Based on 1947-56 Av. Earns. vs. 1956 Book Value plus adj.



**Table II**  
**Formula Calculations of Expected Growth of Earnings of Dow-Jones Ind. Issues,**  
**as Indicated by August 5, 1957 Price**

Company	Price 8/5/57	Average Earnings 1947-56	Expected Growth 1957-66 vs. 47-56	Indicated Earnings 1957-66	Indicated Multiplier*	Earnings 1956	Expected Increase 57-66 vs. 1956	Actual Increase 56 vs. 47-56
Allied Ch.	89	\$4.50	+58%	\$ 7.22	12.6	\$4.74	+52%	+ 6 %
Am. Can	44	2.61	46	3.83	11.6	2.92	33	12
Am. S. & R.	54	5.43	12	6.10	9.0	6.67	(-8)	23
Am. T. & T.**	173	9.90	47	14.70	11.8	10.74	36	14
Am. Tob.	72	6.58	18	7.80	9.4	7.51	4	14
Beth. St.	49	2.88	44	4.15	11.5	3.83	8	33
Chrysler	77	8.95	4	9.28	8.3	2.29	(large)	(-76)
Corn Prod.	31	1.96	41	2.76	11.4	2.36	18	12
Du Pont	199	5.60	112	11.85	17.0	8.20	45	47
East. Kod.	104	3.49	93	6.62	15.4	4.89	36	37
Gen. Elec.	68	1.87	113	4.00	17.0	2.45	62	31
Gen. Foods	49	2.42	59	3.86	12.7	3.56	9	45
Gen. Motors	45	2.48	51	3.74	12.1	3.02	24	22
Goodyear T.	76	4.18	42	5.96	11.4	6.03	(-1)	47
Int. Harv.	35	3.70	8	4.02	8.6	3.14	29	(-15)
Int. Nickel	92	3.86	62	6.30	13.0	6.50	(-3)	68
Int. Paper	101	6.40	40	9.03	11.2	7.05	28	11
Johns Man.	45	3.07	36	4.21	10.9	3.50	20	14
Nat. Dist.	26	2.47	15	2.86	9.2	2.11	36	(-15)
Nat. Steel	75	5.71	28	7.32	10.2	7.09	3	25
Proc. & Gam.	49	2.61	53	3.99	12.2	3.05	30	20
Sears Roebuck	28	1.82	38	2.53	11.0	2.20	16	18
S. O. Cal.	58	3.09	55	4.78	12.4	4.24	12	39
S. O. N. J.	67	2.85	72	4.99	13.8	4.11	21	44
Texas Corp.	74	3.48	62	5.66	13.0	5.51	3	59
Un. C. & C.	117	3.73	99	7.43	15.9	4.86	53	32
Un. Air.	62	3.65	45	5.31	11.6	7.66	(-32)	93
U. S. Steel	69	3.51	57	5.55	12.6	6.01	(- 8)	73
Westinghouse	64	3.79	45	5.53	11.6	.10	(large)	(-97)
Woolworth	42	3.58	22	4.39	9.8	3.57	23	0
D.J. Ind. Av.	500	\$27.50	50	\$41.25	12.0	\$35.80	15	30

\*Dec. 1956 price ÷ Indic. 1957-1966 Earnings.

\*\*The basic formula is less applicable to A. T. & T. than to industrial issues.

the companies were indicating less than half the average expected rate of growth, including five for which actual declines from 1956 levels were apparently predicted. Yet of these eight companies, no less than five had actually shown far greater than average growth in the past decade.

This leads us to our final observations, which tie our two tables together. The ten companies previously mentioned, for which unusually rapid growth is anticipated, includes seven of those shown in Table I as selling significantly above their formula valuation. Again, the eight for which subnormal or no growth is expected include six which were selling substantially below their formula valuations.

We conclude that a large part of the discrepancies between carefully calculated formula values and the market prices can be traced to the growth factor, not because the formulas underplay its importance, but rather because the market often has concepts of future earnings changes which cannot be derived from the companies' past performance. The reasons for the market's breaking with the past are often abundantly clear. Investors do not believe, for example, that United Aircraft will duplicate its brilliant record of 1947-56, because they consider that a company with the United States Department of Defense as its chief cus-

tommer is inherently vulnerable. They have the opposite view with regard to Westinghouse. They feel its relatively mediocre showing in recent years was the result of temporary factors, and that the electric manufacturing industry is inherently so growth-assured that a major supplier such as Westinghouse is bound to prosper in the future.

These cases are clear cut enough, but other divergencies shown in our table are not so easy to understand or to accept. There is a difference between these two verbs. The market may be right in its general feeling about a company's future, but the price tag it sets on that future may be quite unreasonable in either direction.

It is here that many analysts will find their challenge. They may not be satisfied merely to find out what the market is doing and thinking, and then to explain it to everyone's satisfaction. They may prefer to exercise an independent judgment—one not controlled by the daily verdict of the market place, but ready at times to take definite issue with it. For this kind of activity one or more valuation processes, of the general type we have been illustrating, may serve a useful purpose. They give a concrete and elaborated picture of the past record, which the analyst may use as a point of departure for his individual exploration and discoveries in the field of investment values.





# CONSTRUCTION

another multi-billion-dollar industry  
served by **KOPPERS**

**T**HE future of America's vast construction industry staggers the imagination. Reliable authorities estimate that, during the next ten years, \$500 billion will be spent for construction of all kinds and that this will mount to \$1,000 billion—a trillion dollars!—by 1977. This tremendous building job will require many Koppers products and skilled engineering services.

**In the home**, **WOLMANIZED®** lumber will guard against rot and termite damage. Koppers plastics will be used in attractive shower enclosures and colorful, easy-to-clean wall tiles. Water-base paint containing new **DYLEX®** latex will make redecorating easier for the home handyman. Rugged, grease-resistant floor tile containing **KPTL®** resins will provide durable surfaces for kitchens and game rooms.

**In commercial building**, **DYLAN®** polyethylene will insulate electrical wiring and provide rustproof pipe for water and drainage. Built-up roofs of Koppers coal tar pitch will provide a waterproof covering that can be bonded for 20 years. **DYLITE®** expandable polystyrene promises to find wide use as insulation in curtain walls. Interiors will be brighter and more uniformly lighted

with fixtures of **EVENGLO®** polystyrene. They will be quieter, too, with **AIRCUSTAT®** sound traps to take the noise out of air conditioning.

**In highways**, **TARMAC®** road materials will provide long-lived pavements. Koppers pressure-creosoted wood posts will be used in highway guards to make roads safer. Pressure-creosoted piling will continue to be used for road and bridge construction.

**In industry**, Koppers will design and build coke, blast furnace, open hearth, and ore sintering plants, and many types of chemical plants, including coal hydrogenation installations which will provide fuels and chemicals for tomorrow. Industry will be cleaner, too, by using Koppers industrial gas-cleaning equipment to prevent pollution of air, and Koppers specialized equipment which prevents pollution of community streams.

Koppers also serves many other large, fast-growing industries. Koppers products help to make chemicals, textiles, electric power, metals, food products, automobiles, rubber goods. As these industries continue to grow, Koppers and its contributions to them will grow. Koppers Company, Inc., Pittsburgh 19, Pennsylvania.

*Producers of chemicals, plastics, tar products, wood preserving materials, treated wood, metal products, and dyestuffs. Designers and builders of steel mills, coke ovens, and chemical plants.*



# KOPPERS



# Quality vs. "Value" in Insurance Stock Selection

F. W. E. FARR and WILLIAM B. EAGLESON

"UNWEPT, UNHONORED AND UNSUNG" aptly describes the passing from investor favor of the fire and casualty insurance shares since mid-1955. Such near-unanimity of opinion, it may be suspected, presents profit opportunities for those willing to look beyond what the market may be saying at the moment. Recent *Analysts Journal* articles by Shelby Cullom Davis (November 1956) and Robert A. Sjostrom (May 1957) forcefully state a point of view which reinforces this suspicion; yet it is one of the fascinations of security analysis that two such divergent opinions with respect to stock selection should result from authoritative and generally similar appraisals of the industry outlook. This article, also based on the premise that underwriting earnings and insurance share prices are at or near a cyclical trough, presents further observations on stock selection.

## THE SUBJECTIVE CONCEPT OF QUALITY

Quality, in the stock market context, is a subjective concept. The term is used here to convey relative investment stature based on such factors as the long term underwriting profit margin, capital strength relative to the volume of insurance written, vigor of management, and strength of agents and sales force. Two groups of stocks have been selected for comparison—Group A, composed of four top quality underwriters of outstanding reputation, stature and financial strength; and Group B, composed of four companies of roughly equivalent financial strength as measured by the percentage of capital funds to unearned premiums but which have experienced less satisfactory underwriting

profit margins over the years. The problem under study is the price discount which is properly applicable to the secondary underwriters as compared to the industry leaders. The issues to be compared are the following:

GROUP A	10-Year Profit Margin	% Capital to Unearned Premiums
Insurance Co. of N. A.	5.8%	191.6%
Federal Insurance	12.1	222.1
Hartford Fire	6.1	129.0
St. Paul F. & M.	6.3	126.2
	7.3%	167.2%
GROUP B		
Great American	2.5%	165.1%
Fidelity-Phoenix	3.6	290.2
Phoenix	2.2	157.1
Home Insurance	2.4	117.0
	2.7%	182.3%

## NORMAL DIVIDENDS

Table I (appended) presents the data on which the following discussion is based. "Normal" earnings per share have been calculated for each stock by applying to 1956 premium volume the average underwriting profit margin experienced by each company over the past ten years adjusted for taxes at a 50% rate, and adding to this figure 1956 investment income less applicable taxes. Indicated dividend rates for 1957 are considered to be "normal" because of the characteristic stability of investment income. "Plowback", or retained earnings, is derived by subtracting dividends from earnings. Reinvested in the business, re-

TABLE I

Group A	Normal			Price 8/29/57	% of Price			Liq. Value	% to Liq. Val.			Common Stocks per sh.	3% of Commons as % of	
	Earn.*	Div.	Flow- back		Earn.	Div.	Flow- back		Earn.	Div.	Flow- back		Price	Liq. Value
Ins. Co. of N.A.	\$5.45	\$2.50	\$2.95	96	5.7%	2.6%	3.1%	\$100.79	5.4%	2.5%	2.9%	\$78.40	2.5%	2.3%
Federal	2.35	0.90	1.45	35	6.7	2.6	4.1	38.75	6.0	2.3	3.7	20.30	1.7	1.6
Hartford	10.61	3.00	7.61	142	7.5	2.1	5.4	148.86	7.1	2.0	5.1	77.75	1.6	1.6
St. Paul #	3.01	1.20	1.81	45	6.7	2.7	4.0	38.50	7.8	3.1	4.7	18.70	1.2	1.5
Average					<u>6.7%</u>	<u>2.5%</u>	<u>4.2%</u>		<u>6.6%</u>	<u>2.5%</u>	<u>4.1%</u>		<u>1.8%</u>	<u>1.8%</u>
Group B														
	Earn.*	Div.	Flow- back		Earn.	Div.	Flow- back		Earn.	Div.	Flow- back		Price	Liq. Value
Great American	\$3.55	\$1.50	\$2.05	32	11.1%	4.7%	6.4%	\$68.13	5.2%	2.2%	3.0%	\$55.10	5.2%	2.4%
Fidelity Phoenix	3.53	2.00	1.53	45	7.9	4.5	3.4	88.90	4.0	2.3	1.7	76.00	5.1	2.6
Phoenix	5.87	3.00	2.87	62	9.5	4.9	4.6	137.82	4.3	2.2	2.1	95.28	4.6	2.1
Home	3.80	2.00	1.80	36	10.6	5.6	5.0	79.19	4.8	2.5	2.3	57.50	4.8	2.2
Average					<u>9.8%</u>	<u>4.9%</u>	<u>4.9%</u>		<u>4.6%</u>	<u>2.3%</u>	<u>2.3%</u>		<u>4.9%</u>	<u>2.3%</u>

\*Normal Earnings: 10 yr. Average profit margin applied to 1956 premium volume adjusted for taxes at 50% rate, plus 1956 investment earnings net of applicable taxes

# Adjusted for 15% stock dividend paid 9/16/57



tained earnings together with appreciation in the investment portfolio are the fundamental measure of growth in stockholders' interest. In Table I these three factors are shown as percentages of both 1956 liquidating value, or net worth, and recent market price. It is assumed that the common stock component of individual company security portfolios will behave as well as the market generally and a long term average annual growth rate of 3% in stock values is used to reflect this trend. The last two columns of Table I show the assumed annual increment in portfolio value on a per share basis stated as a percentage of both price and net worth.

Comparing the average figures for the two groups, the following appear:

#### As Percentage of Market Price

Per Share	Earnings	Capital Gains	Total	Div.	Value Retained*
Group A	6.7%	1.8%	8.5%	2.5%	6.0%
Group B	9.8	4.9	14.7	4.9	9.8

#### As Percentage of Liquidating Value

Per Share	Earnings	Capital Gains	Total	Div.	Value Retained*
Group A	6.6%	1.8%	8.4%	2.5%	5.9%
Group B	4.6	2.3	6.9	2.3	4.6

\*Earnings plus capital gains, less dividends.

#### EARNINGS

It will be observed that Group A companies earn on net worth or liquidating value at the normal rate of 6.6% compared with 4.6% for Group B, the difference being attributable to the inferior underwriting record of the latter companies. Thus the effective value of assets and retained earnings would appear to be only 70% for Group B versus Group A. In the following calculations, therefore, 66 2/3% will be used as the effective value of Group B's assets and the growth element generated by retained earnings. Applying this discount, the following figures develop:

#### As Percentage of Market Price

	Dividend	Value Retained	Annual Stockholder Increment
Group A	2.5%	6.0%	8.5%
Group B	4.9	6.5*	11.4
% B to A	196	108	134

\*Discounted by 1/3.

The investor in Group A stocks may expect an average annual gain in value equal to 8.5% of his original investment, 2.5% in the form of cash dividends and 6.0% represented by earnings and portfolio appreciation retained in the business. Group B stocks, as might be expected, offer a greater income return. Note, however, that relative to price, which is the only yardstick of significance, Group B offers a larger growth factor in the form of value retained for reinvestment in the business. Note also that this result appears after diluting the growth element of Group B by one-third to adjust for relative inefficiency in employing assets. At the indicated normal price differential of one-third relative to net worth Group B has usually been attractive for income while Group A would be selected for growth. Based upon present market prices, however, it

would appear that the growth aspects of Group B stocks, measured by value retained, are slightly greater than those of Group A and that the income return is almost twice as good.

#### COMPARE INDIVIDUAL STOCKS

It may be interesting to check the results of the foregoing analysis by comparing individual stocks rather than group averages. Insurance Company of North America has been selected to represent the "blue chips" of the industry. The company possesses great capital strength, has enjoyed consistently above average underwriting results, and meets every test of investment quality suggested above. Phoenix Insurance, on the other hand, has experienced only modest success in underwriting over the years although its financial strength is impregnable. This stock is chosen to represent Group B in the following exhibit:

	Per Share Phoenix	1.5 shs. Phoenix	I.N.A.
Price (8/29/57)	62	93	96
"Normal" Underwriting Profit	\$0.88	\$1.32	\$1.41
Investment Income (less tax)	4.99	7.49	4.04
Total Net Income	<u>\$5.87</u>	<u>\$8.81</u>	<u>\$5.45</u>
Less Dividend	3.00	4.50	2.50
"Plowback"	<u>\$2.87</u>	<u>\$4.31</u>	<u>\$2.95</u>
Add: Presumptive Annual Gain in Value, Stock Portfolio	2.86	4.29	2.35
Value Retained	<u>\$5.73</u>	<u>\$8.60</u>	<u>\$5.30</u>
Value Retained (Phoenix discounted 1/3)	<u>3.83</u>	<u>5.75</u>	<u>5.30</u>

The second column of this tabulation shows the Phoenix data multiplied by 1.5 in order to equate roughly the present market prices for purposes of comparison. It will be observed that, per dollar invested, the "value retained" or growth element of Phoenix is some 8.5% greater than that of I.N.A. even after discounting the former by one-third to reflect the lesser efficiency of the company in employing the funds. In addition, the current income return of Phoenix is about 80% greater on the basis of an equal dollar investment.

#### CONCLUSIONS BY THIS APPROACH

The conclusions reached by this approach may raise questions as to whether underwriting profit margins experienced over the past ten years are a reasonable guide to "normal" results for the future. Opinions on this point may differ, but the answer to another question suggests that the analytical technique has some validity. It may be asked "what is the market discounting for Phoenix in terms of the price relationship with I.N.A.?" If the foregoing arithmetical exercise is worked in reverse in order to equate presumed annual stockholder gain, the normal underwriting experience for Phoenix necessary to achieve this result is a loss of that reported in 1956. The market is saying, in effect, that Phoenix will never recover from the present cyclical slump on the average while I.N.A. will regain the average level of underwriting profits enjoyed in the past. There is no apparent basis for such an hypothesis.



## HOW MUCH SHOULD THE INVESTOR PAY

Nothing in the preceding discussion is intended to disparage Insurance Company of North America or the other companies in Group A. Indeed, they have been selected as representative of the best in the business. To restate the objective of the article, however, the question is how much the investor is justified in paying for their admittedly superior quality, and at what point does the price discount accorded by the market to companies of lesser stature make them better investment value.

An avid and relentless pursuit of quality, widely attributed to the activities of institutional investors, has been one of the more notable characteristics of the stock market in recent years. As a result stocks meeting the rigid standards (industry leadership) of these buyers have advanced in price to earnings multiples as high as 50-1. It is suggested

here that such price relationships leave the investor little margin for error and may, in fact, involve a price risk as great as would the purchase of speculative issues.

## BLUE CHIPS AND "NEAR-PEERS"

The leading fire and casualty insurance shares have not been favored by this predilection for quality due, perhaps, to recent fears that their supposed quality is illusory. There has, however, developed a similar price disparity between "best" and "second best." It may well be that the blue chips of the insurance industry, selling at about net worth as this is written, are attractively priced. On the other hand, their near-peers are selling at what appear to be distress prices, offering the investor at least equal build-up in value and double the current income return.

What price quality?

## STANDARD BRANDS

Incorporated

### COMMON STOCK DIVIDENDS

At a meeting of the Board of Directors held today, the following dividends were declared:

Regular quarterly dividend of 50c per share

Extra dividend of 25c per share

both payable December 16, 1957 to stockholders of record on November 15, 1957.

### PREFERRED STOCK DIVIDEND

The Board also declared a dividend of 87½c per share payable December 16th to stockholders of record on December 2, 1957.

John B. Noone

Secretary and Treasurer

October 24, 1957



Manufacturers of a complete line of automotive and industrial storage batteries.

### A REGULAR QUARTERLY DIVIDEND

of 50c per share on Common Stock, was declared by the Board of Directors on October 14, 1957 payable December 16, 1957 to stockholders of record December 4, 1957.

A. H. DAGGETT  
PRESIDENT

ST. PAUL - MINNESOTA



## AIRCRAFT RADIO CORPORATION

Boonton, New Jersey

Dividend No. 99

On October 8, 1957, the Directors of Aircraft Radio Corporation declared on the common Stock of the Company a dividend of twenty cents (20c) per share for the fourth quarter and a year-end dividend of ten cents (10c) per share, making a total of thirty cents (30c) per share, both payable on November 18, 1957, to Stockholders of record at the close of business October 30, 1957.

Payment of this dividend on November 18 will make a total of Ninety Cents (90c) per share paid in 1957.

HERBERT M. KINGSLAND  
Assistant Secretary



## OUTBOARD MARINE CORPORATION

### DIVIDEND NOTICE

A cash dividend of twenty cents (20c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable November 25, 1957, to stockholders of record November 8, 1957.

H. M. FISHER, Secretary

Oct. 28, 1957

## Common and Preferred Dividend Notice

October 30, 1957

The Board of Directors of the Company has declared the following quarterly dividends, all payable on December 1, 1957, to stockholders of record at close of business, November 8, 1957:

<u>Security</u>	<u>Amount per Share</u>
Preferred Stock, 5.50% First Preferred Series	\$1.37½
Preferred Stock, 5.85% Series	\$1.46¼
Preferred Stock, 5.00% Series	\$1.25
Preferred Stock, 4.75% Convertible Series	\$1.18¾
Preferred Stock, 4.50% Convertible Series	\$1.12½
Preferred Stock, 5.75% Subordinate Convertible Series	\$1.43¾
Common Stock	\$0.35

*W. J. Rogers*  
Secretary

TEXAS EASTERN Transmission Corporation  
SHREVEPORT, LOUISIANA





## *This "office boy" travels 25 ft. per second*

Here is a jet-propelled communication system that delivers messages and bulky paper work... sends samples, medicine, nuts and bolts... from desk to desk, office to plant—in seconds.

Airmatic Systems Corporation, an associate of International Telephone and Telegraph Corporation, has brought the magic of automatic dial telephone switching to the pneumatic tube carrier. You simply dial the destination on a standard telephone dial and the rugged, jumbo-size carrier is automatically routed to the right station.

For a bank, hospital, business or factory... the simplified "special delivery" services provided by an IT&T automatic selective pneumatic tube system will speed communication, move orders and materials faster, save miles of walking... for continuous, instant, dependable 24 hour unattended service.



**INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, 67 Broad Street, New York, N. Y.**

For information about automatic selective pneumatic tube systems write to Airmatic Systems Corporation, an associate of IT&T, Fairview, N. J.

# A Projection of Values Based Upon Historical Growth Patterns

FRANK X. KEANEY

**P**REDICTING FUTURE VALUES is a hazardous undertaking but one that is enjoyed by all analysts at one time or another. An analyst who possesses knowledge of a company's budgets for the next five years has an advantage in projecting earnings and dividends over an average stockholder who possesses knowledge of only what has happened in the past and who must guess about the future. This article is being written in the hope that the average stockholder may be benefitted to the extent that his guesses about the future may be based upon reasonable premises that could reduce somewhat the element of "guessing".

## TO DEVELOP A TREND

In preparing the table below, we have made certain assumptions which we believe need clarification. To determine a future projection of earnings and dividends together with price ranges, we have used as bases certain three-year periods in an attempt to develop a trend. These three-year periods include a "recession" year, a good year, and an unusually good year that might be classified as a "boom" year. The periods chosen as our bases are:

	1937-8-9	1947-8-9	1953-4-5
"Boom" years	1937	1948	1955
"Good" years	1939	1947	1953
"Recession" years	1938	1949	1954

## DIFFERENCES IN PERIODS

In analyzing the base periods it should be acknowledged that the recession year of 1938 was much "tougher" on business profits than either 1949 or 1954, and the profits in the year 1939 were probably not at as high a level as in 1947 or 1953, even when considered on a relative basis. However, we believe the three periods are sufficiently similar in many characteristics as to provide adequate bases for projecting the potentials in some future three-year period which would include a "boom" year, a "good" year and a "recession" year.

The future three-year period for which projections are calculated is 1958-59-60. We are using this future period for no other reason than it is five years distant from our most recent base period. It should be thoroughly understood that the calculation of our projections is predicated upon the assumption that our economy will not be subject to either a violent depression or to a run-away inflation caused by a major military conflict. It is further assumed that a state of "practical peace" will exist as it did in the years used as bases, remembering, of course, that 1939 witnessed some preparation for defense, and 1953 profits were subject to an excess profits tax although the Korean conflict had ceased to have much effect upon our economy. It is also assumed that our business cycles in the future will be shorter in duration and of less magnitude in character, (as

has been the case since World War II) than the business cycles that were encountered between the Civil War and World War II.

If there be any merit at all in this type of projection, it should be obvious that the relevancy is greater with those companies whose business characteristics have remained relatively constant. Certainly, such companies as Olin Mathieson or General Dynamics could not be projected on the basis of past performances. The companies listed below, however, we believe, qualify for consideration in projecting the future on the basis of the past, although adjustments must be made for the history of U. S. Steel and International Paper in 1937-8-9 and for Sears Roebuck in 1947-8-9 as all retailers experienced unusually fine years during that period.

## EFFECTS OF INFLATION

Inasmuch as the effects of inflation have been prevalent to some degree in all three base periods, the question of the possible effect of future inflationary forces is ignored as such.

As an illustration of a forecast based upon historical patterns, let us consider General Motors:

	Average 1937-8-9	Average 1947-8-9	Average 1953-4-5	1958	Projected 1958-9-60
General Motors (recent price 42)					
Range	12-4	13-9	54-18	49-40	75-35
Cash Flow	\$0.75	\$1.85	\$4.02	\$4.25	\$7.00
Earnings	0.59	1.50	3.17	3.01	5.50
Dividend	0.48	0.86	1.72	2.00	3.00
Mean Price x Earnings	13	7.3	11.3	15	10

Earnings of General Motors increased over 150% or about 15% on an average annual basis not compounded between the 1937-8-9 period and the 1947-8-9 period. The increase in earnings between the latter period and the 1953-4-5 period amounted to about 111% or about 19% on an average annual basis. Thus it would not seem unreasonable to project an average annual increase of 15% or an increase of 75% in earnings for the period 1958-59-60, if such a period incorporated a "boom" year, a "good" year and a "recession" year. Such an increase would produce earnings of about \$5.50 per share and a potential dividend of \$3.00 per share, based upon an historical pay-out pattern. The determination of a price-times-earnings ratio is a more difficult task but an average of the mean ratios existing in the three past periods would appear to be a conservative ratio to use for determining a mean price for the range in the future period. In the case of General Motors, the average mean price ratio is slightly over 10 times, so using a 10 x earnings basis for the future period produces a mean price of 55 with a range of 75 high and 35 low. The projected range can be extended or reduced according to



TABLE—Projections for Ten Leading Companies

4-27-57 Price	1937-8-9	1947-8-9	1953-4-5	1956	Projected 1958-59-60	4-27-57 Price	1937-8-9	1947-8-9	1953-4-5	1956	Projected 1958-59-60
25	<b>Atchison Topeka &amp; Santa Fe</b>					80	<b>Goodyear Tire &amp; Rubber</b>				
Range	5-2	12-7	32-18	34-26	44-28	Range	18-4	14-9	66-22	84-60	110-70
Earnings	\$0.15	\$1.95	\$2.78	\$2.64	\$3.60	Cash Flow	\$1.55	\$3.90	\$8.50	\$9.70	\$13.50
Dividends	\$0.03	0.80	1.47	1.60	2.00	Earnings	0.75	2.28	5.36	6.03	9.00
Mean Price						Dividends	0.29	0.92	1.71	2.40	4.00
× Earnings	23	4.9	8.9	11	10	Mean Price					
44	<b>Consolidated Edison</b>					× Earnings	15	5.1	8.2	12	10
Range	50-17	29-21	53-35	49-44	66-46	96	<b>International Paper</b>				
Earnings	\$2.16	\$2.15	\$3.01	\$3.20	\$3.75	Range	6-2	24-13	117-40	144-99	150-66
Dividends	2.00	1.60	2.37	2.40	2.75	Cash Flow	\$0.47	\$6.17	\$9.30	\$11.00	\$13.00
Mean Price						Earnings	0.02	5.06	6.70	7.05	9.00
× Earnings	15	12	15	15	15	Dividends	nil	1.47	2.87	3.00	5.00
192	<b>Du Pont</b>					Mean Price					
Range	47-23	63-41	290-91	237-175	350-200	× Earnings	N.A.	3.7	13	17	12
Cash Flow	\$1.95	\$4.65	\$9.70	\$10.50	\$17.00	26	<b>Sears Roebuck</b>				
Earnings	1.56	3.42	7.18	8.19	12.50	Range	8-4	15-10	41-19	37-23	46-28
Dividends	1.37	2.61	5.43	6.50	9.00	Cash Flow	\$0.55	\$1.95	\$2.20	\$2.50	\$3.50
Mean Price						Earnings	0.45	1.64	1.89	2.20	2.85
× Earnings	22	15	23	25	22	Dividends	0.35	0.69	0.97	1.00	1.50
63	<b>General Electric</b>					Mean Price					
Range	22-10	15-10	58-22	65-53	75-45	× Earnings	13	7.6	15	14	13
Cash Flow	\$0.68	\$1.77	\$3.09	\$3.70	\$5.00	60	<b>Standard Oil (N. J.)</b>				
Earnings	1.33	2.03	2.76	3.60E	4.25	Range	11-6	15-10	51-22	62-50	81-47
Dividends	0.50	0.59	1.46	2.00	2.50	Cash Flow	\$1.15	\$2.60	\$4.90	\$6.10	\$8.25
Mean Price						Earnings	0.59	1.68	3.26	4.11	5.75
× Earnings	32	9.3	19	22	17	Dividends	0.27	0.54	1.59	2.10	3.00
43	<b>General Foods</b>					Mean Price					
Range	24-12	25-17	48-26	50-43	62-40	× Earnings	14	7.4	11	13	11
Cash Flow	\$1.55	\$2.45	\$3.45	\$4.50E	\$5.25	63	<b>U. S. Steel</b>				
Earnings	1.33	2.03	2.76	3.60E	4.25	Range	21-7	15-10	62-16	73-52	92-60
Dividends	1.04	1.04	1.46	1.80	2.50	Cash Flow	\$1.40	\$4.60	\$9.40	\$11.35	\$14.50
Mean Price						Earnings	0.34	2.22	4.48	6.01	8.50
× Earnings	13	11	13	13	12	Dividends	0.06	0.94	1.72	2.60	4.50
						Mean Price					
						× Earnings	N.A.	5.6	8.7	10	9

General—Statistics have been obtained from annual reports and from Standard & Poors.

N.A.—Not Applicable in establishing a trend pattern.

E—Estimated.

Prices—Figures used are approximate as fractions are ignored.

Cash Flow—Figures are to the nearest nickel and are based upon current capitalization.

Earnings—Are adjusted for stock splits and stock dividends.

Dividends—Also adjusted for stock splits and stock dividends.

Mean Price × Earnings—Are figured to the nearest whole number at times when ratio is in excess of 10 times earnings. The times earnings ratio is not considered applicable in the 1937-8-9 period for either International Paper or U. S. Steel. The estimate of the future price-times-earnings ratio is adjusted to reflect changing conditions in some instances.

the reader's thoughts concerning price stability in the future period. The projected ranges used in the table would appear to be consistent with the experience of the past. For those readers who prefer to use a "cash flow" figure rather than "earnings, the projected mean price for General Motors would be about 59 rather than 55.

#### COMMENT

If there be any merit in the projection of a future price range based upon past earnings records, it is interesting to note in reviewing the above table that each stock with the lone exception of General Electric is currently selling at less than our projected future mean price. In addition, four stocks, Atchison, Topeka and Santa Fe, Consolidated Edison, Du Pont, and Sears Roebuck, are currently selling at levels which are below our estimated future price range,

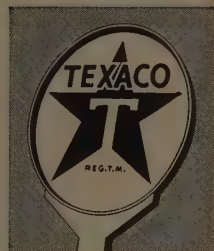
thus indicating that they might be the more attractive from the standpoint of stability.

It is also interesting to note that all eleven stocks are currently evaluated on the average at about 92% of the projected mean prices in the future period 1958-59-60, thus indicating that investors are confidently appraising the future and creating either the impression that we have been too conservative in projecting the future price range or that the market may have already discounted to a considerable extent the bright future that may lie ahead.

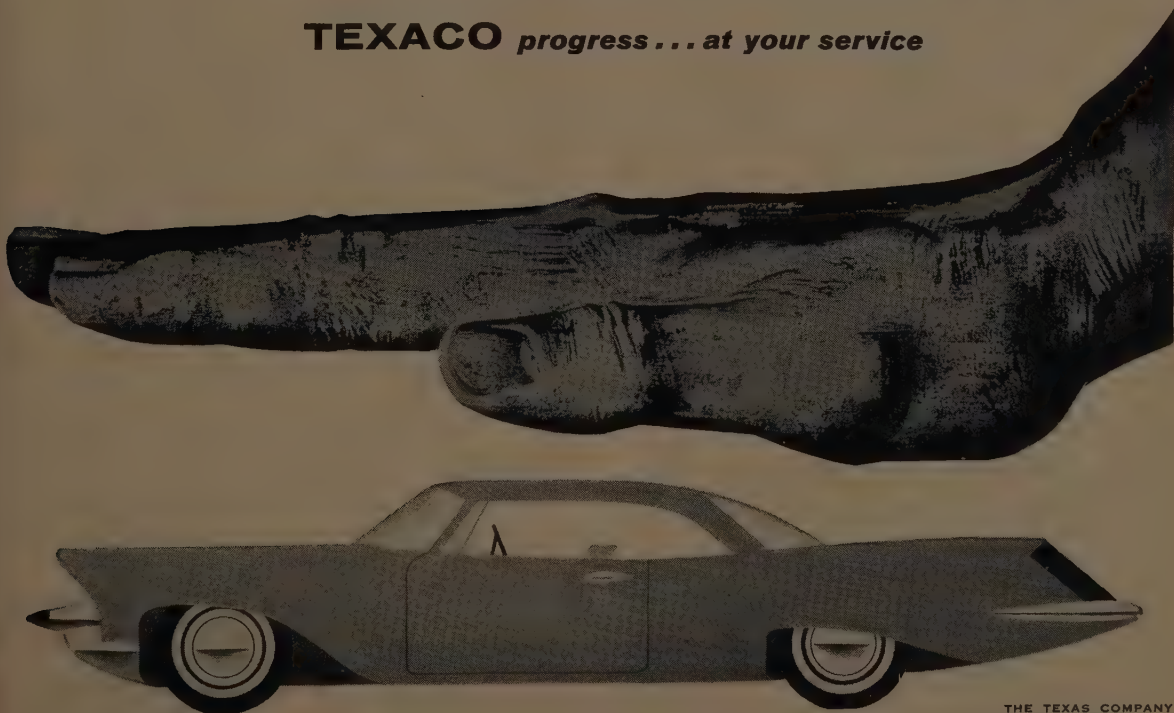
We fully understand that any type of projection is inherently controversial but we believe the figures produced in the above table by means of projecting the future on the basis of historical growth make for interesting study and may provoke stimulating remarks regarding the efficacy of a projection of this type.

## LOW DOWN

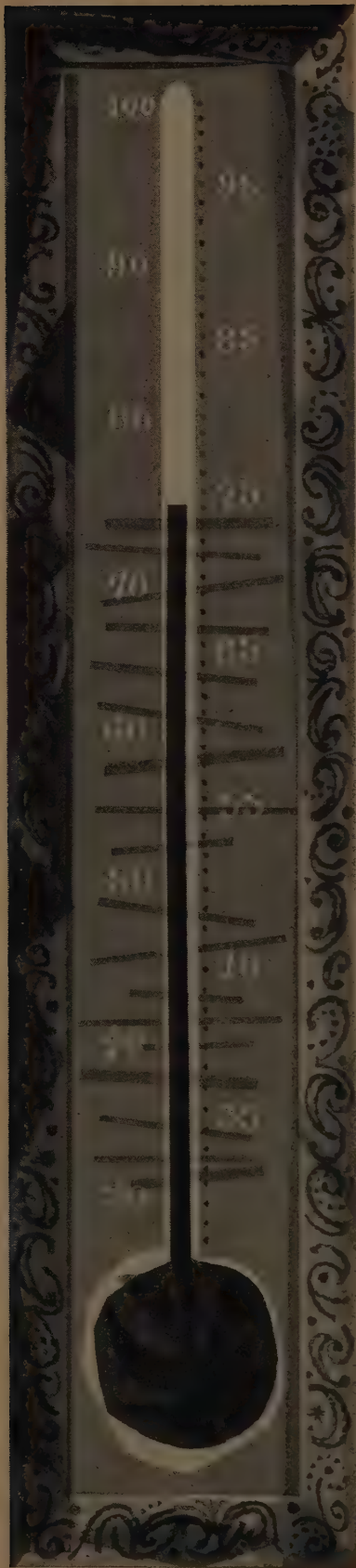
... The low, sleek lines of the modern American automobile are made possible by an ingenious engineering achievement called the hypoid gear. It drives the rear wheels, but because it meshes *below* their centers, engineers are able to reduce an automobile's height. Lubricating the hypoid gear posed a tough, complex problem... a problem eventually solved by the combined research skill of the automobile and petroleum industries. Texaco scientists pioneered in developing a rugged petroleum lubricant for this special purpose... another evidence of the cooperation and resourcefulness that has made Texaco research a valuable partner of modern industry in its march of progress.



**TEXACO** *progress... at your service*







## right climate for the growth of cellulose

In 1910, American Viscose Corporation founded the rayon industry in America. From then till now, our laboratories have been constantly improving product performance. In that way we assure the continued growth of rayon and other products made from cellulose (including cellophane). *We create the most favorable climate to grow in.*

As a result of continued improvement, rayon in less than half a century has virtually revolutionized the lives of all of us. Today a nation wears, walks on, rides on, lives with, and moves goods with the help of Avisco® rayon... in the form of dresses and gowns, bathing suits, bedspreads, draperies, carpets, tires, conveyor belts.

And right now exciting new developments are in the offing for Avisco rayon. From our laboratories are coming vastly improved forms of rayon, and these are expected to have further spectacular effects on the way America lives.

Research, too, has made major contributions to the success of Avisco cellophane. Growing packaging uses are such, in fact, that American Viscose is now expanding cellophane production facilities by 50% at Marcus Hook, Pa., to take care of the demand.

American Viscose Corporation, with an impressive record of research achievement, believes that a more abundant tomorrow for everyone can be given a head start in our laboratories today.

### AMERICAN VISCOSE CORPORATION

Executive Offices, 1617 Pennsylvania Blvd.  
Philadelphia 3, Pa.



# Nickel

## Competition Spurs Demand

PHILIP J. FITZGERALD and ORHAN SADIK KHAN

**I**F METALLURGISTS HAD ONLY ONE METAL to work with they probably would choose nickel, because of the unique properties of the metal and its more than 3,000 alloys. Modern technology, particularly in the production of jet engines, supersonic aircraft, guided missiles, and electronic and atomic equipment, is absolutely dependent on nickel, because it provides the necessary strength at the extreme temperatures characteristic of these fields. In temperature environments ranging from close to 460 degrees below Fahrenheit (absolute zero) to almost 2,000 degrees above Fahrenheit, nickel is one of the few metals which will retain both their hardness and strength. Only nickel will resist impact, corrosion, abrasion, and wear through such a wide temperature range. Because the demand for materials and equipment to perform under such exacting specifications has become almost commonplace, the result has been to create an almost unparalleled need for nickel. The combined military and industrial demands have so taxed its availability that nickel has been allocated to users through most of the post-war years, in spite of the fact that the Free World production in this period rose from 255 million pounds to over 460 million pounds last year. This expansion was undertaken principally during the Korean emergency.

Most of the expansion in nickel supplies has been accounted for by greater Canadian output from Sudbury Basin, augmented by the output of two new producers, Sherritt Gordon Mines and M. A. Hanna Co. Since last year's increased output failed to meet consumers' needs, a new major expansion has gotten under way, which will add another 165 million pounds annually to the Free World supply of nickel by 1961. The International Nickel Company will account for about 100 million pounds of this expansion from its entirely new property in Manitoba, which ultimately may be capable of a considerably increased output. By 1959, Freeport Sulphur will start producing 50 million pounds of nickel a year at Moa Bay, Cuba. This latter deposit is so vast that it will be capable of supporting a great expansion in the future, once the operation has established itself on a profitable basis.

### THE DEMAND FOR NICKEL

There has been a sharp cleavage in opinion between Inco and the independent producers of nickel, including Freeport. The independents believe the future demand for nickel will exceed all the foreseeable production increases that lie ahead. On the other hand, Inco has intimated that the industry would be faced with serious overcapacity if the Cold War were to end and if the combined military and stockpiling requirements—which are currently taking 40% of the available supply—were to revert to industrial

users. Therefore, Inco's \$175 million nickel expansion in Manitoba came as a considerable surprise to investors.

Those who have confidence in the future of nickel consider the industry to be in a position similar to that of the aluminum industry ten years ago. Today the nickel industry is—

1. dominated by the great research leader whose metallurgy has created most of the present industrial uses of nickel; and
2. on the verge of creating enough new capacity outside Inco to provide effective competition.

Like Alcoa a decade back, Inco owns the richest known ore deposits and has the greatest technological know-how in nickel refining and alloying. Having created most of the present demand for nickel, outside its uses in plating and coinage, many observers feel Inco has developed an attitude similar to the possessiveness that Alcoa felt toward aluminum at the end of World War II. At that time Alcoa was expressing its concern over the ability of the peacetime market for aluminum to absorb the productive capacity built up to meet the war needs.

By comparable reasoning, Inco has followed a policy of pricing nickel well below the level which industry would readily accept in order to assure nickel's competitive position in the metallurgical race that lies ahead. Because Inco's Sudbury nickel ores are so enriched with copper, platinum, and other subsidiary metals, its operations are among the most profitable of any major industrial operation in the world. In 1956, Inco's profits before income taxes amounted to 35% of its sales, and its profits after income taxes equalled 22% of its net sales. Since its proven ore reserves in the Sudbury Basin alone amount to 264 million tons, or an assured 17-year supply at its current rate of mining, Inco is in an obvious position of enforcing its low price policy on both present and prospective competitors.

Inco's competitors take an opposite view, and feel that this policy has served to prevent competition from entering the market and from making available the supplies needed to overcome the very crippling shortages of the past five years. While they recognize the long-range desirability of having nickel priced as competitively as possible among alternate metals, they feel that the past and continuing shortage has—

1. kept potential users from experimenting with nickel;
2. led metallurgical leaders to develop alloys which have satisfactorily substituted chrome and manganese for nickel in many important nickel-consuming stainless steels; and
3. caused other important users to design away from the



use of nickel lest they be again embarrassed by an unexpected shortage.

Regardless of which point of view may prevail in time, the critical shortage of nickel has been so widely commented upon by both producers and consumers that the nickel scarcity is perhaps the best publicized industrial statistic of the year 1957.

#### HOW MUCH STOCKPILING OF NICKEL?

From the record it would seem that investors need not worry about the stockpiling of nickel. During the past two years some 580 million pounds of nickel were made available to the American market. Of this total, about 110 million pounds went into the stockpile. The best estimates indicate that the established users of nickel, who rated rearmament priorities, could have used 150 million pounds of the metal in addition to the 475 million pounds which they received under the present allocation system.

The industrial short supply of nickel and its vital role in the defense effort were emphasized during the Korean emergency. The Government then—

1. set the largest of all stockpiling programs for nickel with a target of 840 million pounds; and
2. found nickel requirements spiraling for defense uses, such as in aircraft superalloys. The demand for nickel-based superalloys has since grown so rapidly that last year they consumed 50% as much nickel as was used by all stainless steelmakers only three years ago.

In order to accommodate the combined industrial and military demands for nickel, the United States Government extended long-range purchase contracts at prices substantially above the prevailing market. By assuring the repayment of funds invested in new productive capacity, the Government has encouraged—

1. the operations of a new Canadian producer, Sheritt Gordon Mines, which is now increasing its nickel output to 25 million pounds annually
2. the premium production from low-grade ores at Inco's Sudbury mines, calling for the delivery over a period of years of 120 million pounds of nickel to the stockpile at a price of 90 cents a pound;
3. the eventual supply of 100 million pounds of additional nickel by Falconbridge Nickel at a price of \$1.045 per pound;
4. the first sizable domestic production at Riddle, Oregon, where the M. A. Hanna Company opened an 18-million-pound-a-year ferronickel mine based on guaranteed prices over a sliding scale up to \$1.44 per pound of contained nickel;
5. the reopening of the Nicaro Nickel Works in Cuba, operated for the Government by the National Lead Company, whose annual rated production will be increased 75%, to 49 million pounds.

#### TOTAL PRODUCTION

The total production of this post-Korean expansion has fallen far short of bringing the nickel supply into balance. Last December, Inco raised the price of nickel by 9½ cents

a pound, to 74 cents a pound. However, the nickel diverted from the national stockpile was readily sold to users at the appreciably higher Government contract prices, and in the free market nickel consumers have paid as much as \$2.75 to \$2.88 a pound for nickel imported from New Caledonia, Japan, and Europe.

In the light of the pent-up commercial demand for nickel, increasing interest has centered upon Inco's Mystery-Moak Lakes ore discovery in northern Canada and upon the huge Cuban deposits which are to be exploited by Freeport Sulphur. Since these projects can be expanded far beyond their initial goals, they offer a real promise of at last ending the nickel shortage over the long term.

Inasmuch as nickel is bound to hold a key position in the expansion of atomic power and electronics as well as in jet aircraft and missiles, its future must seem promising to an impartial investor. Because the long-term prospects favor the ending of the nickel shortage and the establishment of competitive sources of supply, these longer-range considerations become even brighter. Most large companies try to limit the use of any material for which there is only one source of supply. The continuing shortage of nickel has served to reinforce this policy. What effective competition can mean to the market of a strategic metal was well demonstrated by the spiralling use of aluminum once Kaiser and Reynolds were firmly established in production. In 1946, Alcoa expressed its fear that the peacetime markets could not absorb the 990 million pounds of aluminum produced in 1945—yet the record shows that the demand for competitively produced aluminum rose to 3,358 million pounds in 1956. Few followers of the aluminum market believe that this remarkable growth could have occurred had the metal continued to be produced solely by Alcoa, in spite of that company's aggressive research program and its development of products and markets.

#### INCO'S MYSTERY-MOAK LAKES DISCOVERY

Notwithstanding its repeated concern over the possible overproduction of nickel, Inco has increased its output by 39% during the past ten years, and at different times has placed its refining facilities at the disposal of its competitors. Concurrent with raising the price of nickel last December, Inco announced a new expansion in the far north reaches of Manitoba which will involve the equipment of the second largest nickel mining and refining operation in the world. Culminating a ten-year \$10 million search which pioneered revolutionary prospecting methods, Inco found what may be the richest nickel deposit since its great Ontario mines were opened in the 1880's. This discovery prompted Inco to undertake a \$175 million expansion project—in itself an impressive endorsement of the probable future demand for nickel. Inco has stated that the Mystery-Moak Lakes operation, together with greater output from Sudbury, will raise its production capacity 35% to 385 million pounds annually by 1960, even after terminating the temporary premium price production of 24 million pounds annually for the stockpile from some low-grade Sudbury ores at present. Inco's treasury is so strong that it can easily finance this and any other promising ventures that may develop in spite of the Government's

recent refusal to grant the Manitoba project the same purchase guarantees it had given to Freeport. At the 1956 year end, Inco had \$84 million in free cash after allowing for the retirement of its preferred stock and all outside liabilities, and retained earnings and depreciation accruals are adding \$60 million a year to Inco's substantial nest egg.

#### FREEPORT SULPHUR

Perhaps the greatest promise of ending the nickel shortage lies in a contract obtained by the Freeport Sulphur Company last March, under which the United States Government has agreed to buy at current market prices, until 1965, up to 271 million pounds of nickel and 24 million pounds of cobalt from Freeport's extensive deposits at Moa Bay, Cuba.

The Cuban nickel deposits are for the most part owned by Bethlehem Steel and Freeport Sulphur, and, including their proven and probable ores, are believed the largest in the world. They are said to contain several times more nickel than the nickel content of the proven reserves at the Sudbury Basin, which includes the principal operations of both Inco and Falconbridge. While the Cuban deposits are the largest, they do not compare with the Sudbury ore for richness. Freeport's operations will start with proven reserves at Moa Bay that alone total over 50 million tons, averaging 1.35% nickel and 0.14% cobalt. By comparison, Inco's 264 million ton reserve at Sudbury averages 1.5% nickel, which it mines so profitably because the ore contains an equal amount of copper as well as important enrichments of platinum, cobalt, gold, silver, selenium, and tellurium. In all, Inco extracts 14 elements from its extraordinary Sudbury ores, so that the values recovered per ton should continue future operations at the wonderfully profitable level enjoyed during the past.

Because the Cuban laterite ores occur in oxide form from which nickel can not be extracted by conventional refining methods, they were never considered commercial until Freeport proved the feasibility of a new chemical reduction process in a \$6 million pilot plant experiment. The chemical recovery method to be used is based on the revolutionary hydrometallurgical process so successfully pioneered by Sherritt Gordon in its Fort Saskatchewan refinery. This permits the simultaneous recovery of high purity metals from complex ores by an "all wet" chemical process which is so efficient that production costs are said to compare favorably with those of Inco itself.

Freeport plans, at a total cost of about \$100 million, to develop its Moa Bay properties and to build a refinery near

Canadian Nickel Output and U. S. Output of  
Primary Aluminum—1935 to 1956  
(In Millions of Pounds)

Year	Canadian Nickel	U. S. Aluminum
1935	140	120
1940	246	413
1945	245	990
1950	247	1,437
1951	276	1,674
1952	281	1,875
1953	287	2,504
1954	323	2,921
1955	350	3,132
1956	358	3,358

Braithwaite, Louisiana, with a capacity of 50 million pounds of nickel and 4.4 million pounds of cobalt annually.

The nickel oxide ores, which Freeport will mine by open pit methods, are to be converted by sulphuric acid leaching into nickel sulfides, and the resulting concentrates will be shipped from Moa Bay to the Louisiana plant for final separation and refining. The concentrates are expected to yield one pound of cobalt for every ten pounds of nickel, which will contribute materially to the profitability of the operation.

Moa Bay will make Freeport the second largest producer of nickel in the world. The proven reserves at Moa Bay give Freeport the opportunity to expand its output substantially above the scheduled 50 million pounds of nickel annually. Furthermore, Freeport's subsidiary, Nicaro Nickel, owns extensive deposits at Levisa Bay, from which it supplies ores for the Government's nickel works, operated by the National Lead Company. Last year Nicaro Nickel earned a profit of better than \$1 million.

Inasmuch as the position of nickel in 1957 appears to be even more strategic than the position of aluminum in 1946, it is very easy for long-range investors to view the future of nickel with enthusiasm, since—

1. the supply of the metal will be substantially increased over the next ten years;
2. the new operations are susceptible to very considerable expansion as soon as their profitability has been established; and
3. the expanded production will bring into the picture a second source with sufficient nickel reserves to assure that production of nickel will, in due course, receive the benefits which competition has brought to all of our great American industries.

\* \* \*

The main use of nickel is as an alloy for steel. Nickel imparts to its alloys strength and lightness that are especially valuable in times of war. Nickel is duty free.

—Don D. Humphreys

The price of steel rails was unchanged for ten years; the price of nickel and sulphur did not change from June 1929 to May 1937.—C. Lowell Harris

The world production of nickel is more than four times what it was twenty years ago.



# *It's a "sure thing"...* *Better Power-Trains* *mean Better Machines*



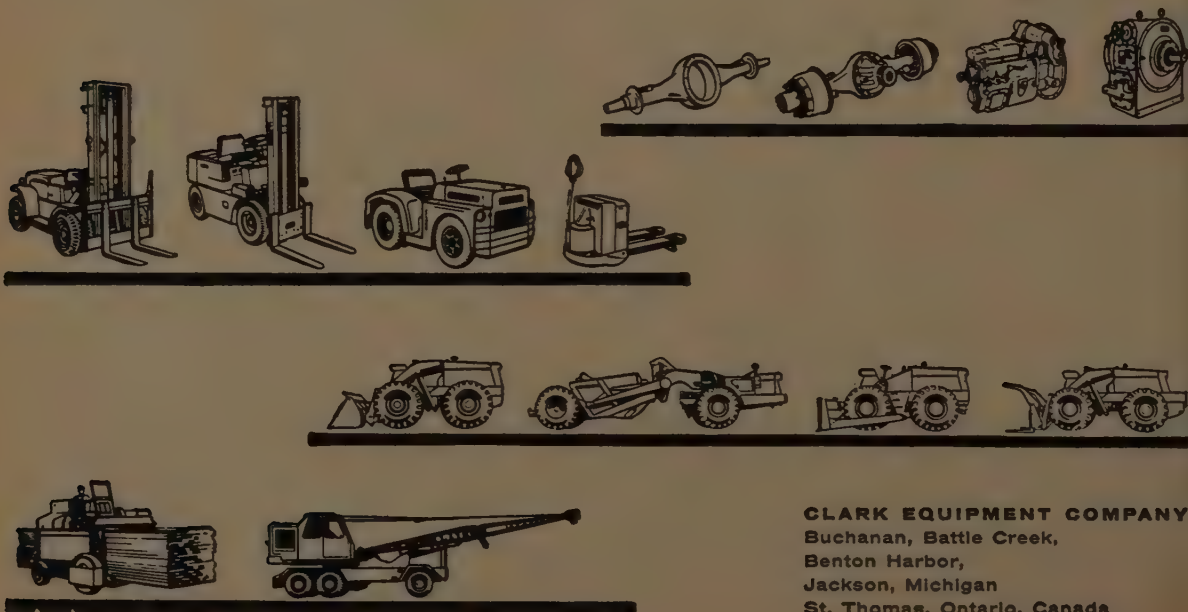
For 40-odd years Clark Equipment has focused engineering attention on a vital area of automotive equipment performance: the transmission of engine torque from flywheel to drive wheels.

Starting with axles, transmissions and finally torque converters—those working “vitals” that transform engine power into driving power—it was natural, even inevitable, that Clark would develop end-product machines, using its own-designed, own-

built components.

That those Clark machines would win swift success is not surprising, for leadership was bred into them—leadership in the vast area of materials handling, leadership more recently in the huge construction industry.

There's an irresistible logic about that Clark development, pointing up a sound moral: Better Power Trains mean Better Machines. Clark builds both!



**CLARK EQUIPMENT COMPANY**  
Buchanan, Battle Creek,  
Benton Harbor,  
Jackson, Michigan  
St. Thomas, Ontario, Canada

# The Agricultural Equipment Industry

FRANK L. TURGEON

THE FUTURE EARNING POWER and market appraisal of the agricultural equipment equities is an interesting challenge to the security analyst. Several of these producers appear attractively priced on the basis of: (1) prospects for higher sales, earnings and dividends; (2) relatively low multiples of current earnings; and (3) they are generally selling at or near their two-year lows to provide generous yields.

The purpose of this article is briefly to review the background and framework of agriculture, the characteristics of the agricultural equipment industry, the outlook for the industry, and the foreseeable prospects for the industry's several domestic companies.

Factors that have influenced agriculture are more numerous and intricate than most other segments of our economy. Land, government, and war have been the most important determinants of agriculture's prosperity and problems. Until the latter part of the 19th century, balancing of abundant land with the scarce factors of production was the most important American economic policy. The rapidity with which government disposed of public lands not only caused serious repercussions on every phase of the country's economic development, but also was the fundamental influence in determining the small size of the average farm. Plentiful land permitted agricultural surplus to sponsor our industrial evolution. This led to ever greater economic dislocations. War has been a stimulant to overproduction. The Civil War caused a tremendous impetus to the development and production of agricultural machinery and initiated the change from extensive to intensive cultivation. World War I hastened the acceptance of the tractor and during World War II, food consumption increased as fast as our gross national product.

Government aid to agriculture began close to a century ago. It took the form of aid to agricultural colleges, experimental stations, extension work, and similar projects, but since the depression of the 1930's its assistance has been predominantly concerned with raising farm prices and income. The prime difficulty with farm income is not necessarily its level, but its undependability. Weather alone can affect supplies, and demand can be influenced by business conditions, dietary habits and the well being of foreign markets. These forces cannot be controlled by the farmer, and he is, therefore, unwilling to allow the market to decide the best allocation of his resources. Over-represented in many legislations, his overproduction costs have been socialized.

Prices may guide producers in allocating resources to their utmost efficiency. However, farm output responds slowly to price relationships. Efficiency in terms of value added per worker is illustrated by the fact that manufacture today is about three times as gainful as agriculture. Generally, too little capital and too much labor is used. Lack

of education, inefficient use of land, uneconomic size of crop, and uneconomical use of farm machinery are some of the reasons forwarded for the inefficiency of farming.

For census purposes, a farm is defined as a tract of land where agricultural operations are carried on, measuring more than three acres or selling commodities worth more than \$150 per year. As a consequence, the term farm includes suburban homes whose residents do a little part-time farming. Nearly one-third of all farms fall into this category, and nearly four out of five farms consist of less than 200 acres and represent a relatively small investment. The lack of symmetry in the size of farm curve is illustrated by these figures. Yet, the average farm consists of approximately 250 acres.

The primary problem of agriculture is not poverty. When legislators claim the contrary to be true, they overlook the fact that the number of farms is over-stated by part-time farmers and that farm income is understated by the exclusion from farm income, income from non-farm sources. They also underestimate the rental value of the farmhouse and the value of food produced and subsequently consumed on the farm. "Parity" prices pose as just prices but they are arbitrary in nature and have been adjusted by altering the base period, by including additional farm costs, and by excluding income from some sources.

With relatively high support prices, losses through surplus disposal can only be kept within limits if supply is controlled. Controls applied to production are limited in value for reduced acreage has not resulted in a proportionate decline in output. Controls applied to marketings appear to be the only effective means, for when production of one product is curtailed, output of another rises. Economically, we have resorted to such fantastic devices as paying farmers not to produce, while at the same time continuing to spend millions of dollars on reclamation of land. The government's farm policies have been a study in failure partially because controls tend to be permanent in nature. This permanency also implies a greater stimulus and stability to farm income and, as a consequence, to the agricultural equipment industry.

The agricultural equipment industry is an important business whose sales have shown impressive growth both in relation to other industries and farm income. Growth has been caused by favorable economic trends in the price of equipment relative to prices received for farm products and the costs of farm labor. An ability of farm equipment to reduce labor requirements and increase productivity is obvious. The industry's growth has also been stimulated by exports. Underdevelopment of many foreign countries, relatively low standards of living, and relatively low farm productivity render this a sizeable and rapidly expanding market. Several domestic manufacturers recognize the potentialities in this market and continue to organize new



overseas manufacturing facilities. Additional demand factors that are not subject to measurement include the farmer's natural desire to decrease his physical labor, increase his leisure time, and be considered an intelligent farmer comparable to his neighbors.

While the industry has demonstrated good long-term growth, it has also displayed a high degree of cyclical vulnerability, for whenever the general level of the economy has declined, there has been a greater sag in gross farm income. Any decline in farm income has historically resulted in an even sharper drop in farm equipment purchases. An expanding export market with added governmental aid has lessened this cyclical tendency somewhat in recent years.

Price supports are accepted as a public policy by both major political parties. Consequently, it is unlikely that farm prices and income will be permitted to display the extreme drops that have often occurred in the past. In addition, the basic condition of agriculture will likely be less marginal in the future, for steadily increasing population combined with a relatively inelastic supply of land means a better balance, over the long run, between agricultural capacity and demand.

Farming is today a vastly better-financed proposition than in previous years. It was during the 1930's, that the farmer had very limited liquid assets and dubious credit, now, his liquid position is relatively strong and the growth of suburbs has increased the value of his real estate. With capital to purchase equipment, farmers have only to apply ordinary business judgment in the amount and timing of their capital investment.

The extraordinary expansion in farm mechanization since World War II has created a vastly greater high margin market in the fields of repair, maintenance and replacement than ever before existed. A number of machines represent recent innovations that require a relatively large amount of service. In addition, during the early postwar period when a large amount of new equipment was being added to the national inventory, there was a tendency for parts and service demand to be reduced below normal levels. Depreciation charges on farm equipment have exceeded capital expenditures during the past four consecutive years. The average indicated life of farm machinery is between ten to fourteen years and intensive utilization of equipment is indicated by the production of record crops in recent years. Due to the enormous pent-up demand that followed World War II, there would appear to be a substantial replacement market for farm machinery in the years immediately ahead.

The industry's major companies have well established dealer and factory branches. They succeeded over a period of years in obtaining and holding the lion's share of the business. The industry is relatively free from price and adverse competitive conditions, because farmers as a group are slow to buy untested equipment and the ability of the manufacturer to give service through dealers is a highly important factor. Establishment of new and favorable farmer relationships by responsible dealers is a very slow process.

The Soil Bank of 1956 was designed eventually to idle as many as fifty million acres or roughly 15% of total farm acreage and ultimately place some \$1.2 billion in the hands of farmers on an annual basis. The Soil Bank is generally

favorable to the agricultural equipment industry in that a considerable amount of this subsidy money is net additions to farm income. Also, a 15% reduction in acreage means somewhat lower utilization rather than fewer pieces of equipment, and the farmer, even when removing his most marginal property, greatly intensifies his efforts on his cultivated land.

In order to facilitate purchases of farm equipment, most farm equipment companies offer finance facilities to handle new and used equipment paper. Indeed, the farmer now is in a better position to finance equipment purchases than ever before in his history.

Since 1952, relatively low prices and adverse weather conditions have been responsible for the decline in gross farm income, but the sharper drop in net farm income is primarily due to rising costs. Inflexible operating costs and declining prices can only be met with increasing output per man per acre through the greater use of agricultural equipment. Consequently, while domestic sales of farm equipment have and will continue to fluctuate in direct relation with farm net income, they will continually tend to increase their proportionate share of such income.

The industry is an essential segment of our economy in that it deals with the production of food, man's first consideration. Long-term trends in farm population, labor and the number of farms have pointed downward, although the latter has been offset by increased acreage per farm. Added to this excellent background for the farm equipment industry are such other favorable fundamental factors as population growth, and a continuous flow of new and improved products.

Government ownership and price-support loans of agricultural commodities currently total approximately \$7.6 billion. Despite these huge supplies, 1958 is an election year and Congress vehemently opposes the removal or lowering of present price supports. The Administration is likely to request an end to the present escalator formula, which has the effect of increasing price supports as soon as supplies are removed or lowered through disposable programs and the Soil Bank. At least a moderate lowering of the present escalator formula seems in prospect for next year, even though this would probably mean retention of present price-support floors.

The Soil Bank resulted in government payments of approximately \$243 million in 1956 and probably will contribute about \$725 million to farm income this year. Late starting in 1956, the beneficial effects of this program are likely to be even more readily understood by the farmer in 1958. It seems reasonable to forecast an increase in payments of the Bank next year to about the \$900 million level.

Prices received by the farmers reached a 1957 low in February, which was about 3% above year earlier levels. Since February, they have increased about 5% and are currently running about 4% above those of a year ago. Prices paid by farmers are also above the 1956 level, but not enough to offset the higher rate of cash receipts from marketings and government payments. During the first half of 1957, net farm income reached a seasonally adjusted annual rate of \$12.1 billion, or \$300 million above the like

1956 period. The Department of Agriculture estimates that third quarter 1957 net income is likely to run about \$500 million above last year's \$12.1 billion third quarter rate. As a consequence, it now appears likely that net farm income for all of 1957 will reach at least \$12.4 billion vs. \$12.1 billion in 1956, a gain close to 3%. Averaging the amount of farm net income spent on farm equipment during the present decade, or about 12%, dollar shipments of agricultural equipment in calendar 1957, if equal to a like percentage, would expand 10% over 1956 levels. This would appear to be a conservative estimate in view of the fact that over-all shipments were 6% higher in the first quarter of calendar 1957, 9% greater in the second quarter and 11% higher in July, than the comparable 1956 periods. Inventories are reportedly in relatively good balance.

It appears likely that the low point in farm prices, income and equipment sales was passed in 1956. Prospects for 1958, and beyond, point to higher consumer disposable incomes, and this factor when combined with existing and contemplated farm legislation indicates rising farm prices and income. It would seem reasonable to expect that farm-equipment sales would continue to expand at a faster rate than farm income. Consequently, 1958 appears to be a year of increased agricultural equipment demand and a continuing of a trend started in 1957 that could lead to record industry shipments by 1960.

There are a very large number of companies that produce agricultural equipment, but the vast majority of these are relatively small producers of one or a few specialty items having generally only local markets. The vast majority of the industry's domestic volume is centered in the hands of six so-called "full-line" concerns that have national or semi-national distribution. These companies are referred to as the "Big 3," which includes, in order of their industry size, International Harvester, Deere, and Allis-Chalmers, and the "Little 3," which, likewise in order, include J. I. Case, Oliver, and Minneapolis-Moline. Massey-Harris-Ferguson also serves the United States market, but its Canadian and overseas markets are more important to its over-all operations. Some other relatively important factors in the domestic picture include the Ford tractor, the New Holland Division of the Sperry Rand Corporation, the New Idea Division of the Avco Manufacturing Company, and the Cockshutt Farm Equipment Company. A very small percentage of Caterpillar Tractor sales is made to agriculture. This article discusses only the "Big 3" and the "Little 3" because the domestic sales of farm equipment of the other companies are a relatively small proportion of their total volume.

International Harvester is one of the country's older and larger industrial concerns whose operations are well integrated. Revenues from farm tractors, implements, service parts and service represented about 31% of net sales for the nine months' period ending July 31, 1957. Truck volume, including service parts and service, represented about 47% of total volume; construction equipment approximately 13%; steel, iron and coke 5%; defense items 4%, and twine 1%. Sales to the International Harvester Export Company for distribution in foreign countries, including

Canada, represented about 13% of volume.

International Harvester does not consolidate its investment in 28 subsidiary companies whose earnings are significant when related to over-all operations. This is illustrated by the fact that dividends received from subsidiary companies both foreign and domestic were \$12.8 million, or about 40% of net income after taxes, during the first three quarters of 1957 versus 22% of net income after taxes for the like 1956 period.

During recent years, Harvester has shifted some of its emphasis and excess capacity from farm equipment to motor trucks and construction equipment. Earnings have in recent years been hampered by a series of events that, should they recur, are unlikely to be as important to over-all results in future periods. Common share earnings of about \$2.65 are in prospect for 1957, but this could increase quite substantially in 1958 and 1959.

Deere & Company is the only company in the industry that is entirely dependent upon the future of agriculture. Historically this company, on the basis of profit margins and returns on invested capital, has been the industry's most profitable unit, and there seems every reason to believe that this will continue to be the case. Chemical fertilizer operations are now understood to be profitable on a "net income basis," and the company appears to be rapidly expanding its foreign representation. Earnings of about \$3.65 per common share are in prospect for 1957, with some increase probable next year. A dividend increase may well be considered in 1958.

Allis-Chalmers derives close to 40% of its revenues from agricultural equipment, the balance of sales being made up of heavy electrical equipment and general machinery. The company's potential in these three lines indicates good sales and earnings growth in coming years. Common share earnings growth has been partly restricted during the postwar period by preferred stock conversions. Earnings of about \$2.50 per common share seem likely for 1957, and at least a moderate increase in common share earnings seems likely in 1958.

J. I. Case is currently a large producer of tractors as well as a general line of farm equipment. Operating under a greatly strengthened management, the company's current backlogs are understood to be high. Case could report earnings of close to \$1.00 per share in 1957, depending upon the method used in evaluating inventories. In any event, the company should break even this year, and 1958 prospects indicate substantial earnings gains.

Oliver Corporation continues to expand its operations mainly by introducing new products in the road building and construction fields. Common share earnings this year may cover the indicated 60c annual dividend rate. Prospects for 1958 favor some improvement in sales and earnings.

Minneapolis-Moline continues to introduce new lines of equipment used in the road building and construction industries. This diversification combined with a favorable outlook for the farm equipment industry indicates some improvement in over-all volume. Changes in the company's accounting policies render little meaning to earnings comparisons.





## **Ready now—a new Armco super-steel to sheathe air weapons of tomorrow**

As you read this message, meteoric new planes and missiles with awesome striking-power are far along in the development stage. They will prowl the stratosphere at speeds that challenge the imagination.

For Armco research engineers the hazards of such speed presented an equally formidable challenge. The problem: To create a steel that could stand the stress and air-generated heat of high supersonic speeds.

Today, this steel is no longer a dream—it is a reality. It's called Armco PH 15-7 Mo Stain-

less Steel. It is one of the strongest sheet metals available, guaranteed to take 225,000 lbs. of pull per square inch. A skin of this super-steel will stand up even at 1000 F. These properties can keep an aircraft intact and operational at speeds up to Mach 4 (2720 miles an hour).

PH 15-7 Mo is only one of many special-purpose Armco Steels that have created new markets in many industries. The ever-increasing demand for these steels, at home and throughout the free world, has added momentum to Armco's steady growth.

### **ARMCO STEEL CORPORATION**

MIDDLETOWN, OHIO



SHEFFIELD DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

# Consumers' Attitudes Toward Saving and Their Investment Preferences

EVA MUELLER

MUCH OF THE CURRENT DISCUSSION about consumer saving is concerned with two problems: (1) the motivations which lead people to save or not to save, and (2) the effect of changing interest rates on people's savings patterns. This is not to say that motivational factors and interest rates are the only determinants of saving. It is well known that the amounts which people save increase with their incomes. And as a society's income grows, its volume of saving also is likely to grow. But income is primarily an enabling condition as far as saving is concerned. Motivational factors and interest rate changes are important because they may influence the extent to which people will take advantage of income increases to step up their rate of saving. Attitudes and motivations must be measured if we want to understand how and why fluctuations in the volume of saving and spending occur. This will be the first topic to be discussed here. The second topic will be higher interest rates and their effect on consumer saving.

What motivates people to save? This problem has been investigated by the Survey Research Center of the University of Michigan, under the leadership of George Katona, in a number of recent surveys with representative cross-sections of the American people. Table 1 shows the major reasons which people mention when asked the question, "Different families have different reasons for wanting to save. In your family, what are the main purposes for saving?" We see that there are two major types of reasons: First, there is the negative kind: people want to save against emergencies, sickness, unemployment, against the proverbial "rainy day." In every major income group 40-45 per cent of people spoke of this purpose. Secondly, people want to save for certain positive goals: primarily retirement, the education of their children, and, in the middle income and age groups, to buy a house. Among people with incomes over \$5,000 more than 70 per cent mentioned such positive motivations. And this is indeed exactly what we would expect in a wealthy society. People want their children to get a good start in life, they want a nice place to live, and they want to be comfortable in their old age. Table 1 and other inquiries of this kind give strong indication that Americans in all walks of life have a great desire to save. There is no evidence in Survey Research Center studies that positive motivations to save have diminished in the postwar period.

It is sometimes contended that consumer saving is likely to decline because collective security arrangements such as pension plans, group health and life insurance or social security obviate the need for individual saving. First, we must remember that in former generations financial protection against illness and old age was not generally

achieved by individual savings efforts. In many socio-economic groups this type of aid was provided by relatives, particularly grown children. The growth of collective security arrangements has occurred at a time of changing family relationships and changing concepts of family responsibility. Second, at the present time, and probably for years to come, there is a considerable gap between the standard of living to which an employed family is accustomed and the standard of living provided by social security benefits, pension plans, or unemployment insurance. It is conceivable that the minimal protection afforded by collective insurance plans stimulates people to save in order to achieve a more adequate and complete level of protection. Without these plans, on the other hand, economic insecurity would be inescapable for many lower and middle income families.

This problem could and should be studied empirically. At present we have only a bit of evidence which has a bearing on it. As part of a recent study of life insurance ownership, conducted for the Institute of Life Insurance, the Survey Research Center investigated the relationship between ownership of individually purchased life insurance and membership in collective insurance plans. This relationship is crucial, since individually purchased life insurance is probably the closest substitute for the collective insurance programs. It appeared that people who are covered by social security own individually purchased life insurance as frequently as, or even more frequently than, people who are not covered. The same is true for group insurance, G.I. insurance, and pension plans. Those who belong to these programs appear to be somewhat more likely to own individually purchased life insurance than people with similar incomes and occupations who do not belong to these collective insurance programs.

## PRECAUTIONARY SAVING

Next, we may consider the negative motivation to save: saving against a "rainy day." We might call this the "precautionary" motive. Common sense alone might tell us that the felt need to be cautious might vary from time to time. We should expect that people would be more impressed with the need to spend cautiously at times when unemployment threatens or when jobs are hard to find, or business and farm profits are low than in times of growing prosperity. And this is exactly what our data indicate—that people's willingness to spend freely varies with their feelings of optimism and security. The expressions optimism and security are not used here in the sense of a personality trait. What is relevant here are attitudes which are less deep seated and which therefore are responsive to changes in the economic environment. These feelings of optimism and security are dependent both on cumulative



Table 1  
**Purposes of Saving**

(Percentage distribution of all people and of people in different income groups - 1956)

<u>Purposes of Saving:</u>	<u>All People</u>	<u>Family Income</u>				
		<u>Under \$2,000</u>	<u>\$2,000-\$4,999</u>	<u>\$5,000-\$7,499</u>	<u>\$7,500-\$9,999</u>	<u>\$10,000 and over</u>
<u>Against emergencies</u>	45%	42%	45%	46%	44%	40%
<u>For specific goals</u>	66	53	65	71	72	70
Retirement, old age	30	32	27	32	32	40
Children's education; other family needs	21	10	19	27	29	31
Buying a house	14	8	17	17	14	6
Buying a business or farm	2	2	3	1	3	4
Buying other goods	6	4	7	7	7	5
To bequeath money	2	2	2	2	2	5
To earn income from savings	1	1	1	*	1	3
No reason for saving	2	6	2	1	2	1
Uncertain; not ascertained	4	9	4	3	3	4
Total	+	+	+	+	+	+
Number of cases	3021	540	1254	695	270	202

\* Less than one-half of one per cent.

+ Percentages add to more than 100, since some people mentioned several purposes.

The question was: "Different families have different reasons for wanting to save. In your family what are the main purposes for saving?"

experience over a period of years and on current changes in the economy.

The postwar period, and particularly the past few years, have brought about a tremendous growth in consumer optimism. This point may be illustrated by quoting a few survey findings. In June, 1957, the Survey Research Center asked a cross-section of adults whether anything like the depression of the thirties might happen again in the next five years or so. Nearly three-fourths of all people answered flatly that it could not happen again; many of the remaining people expressed uncertainty. Similar opinions were expressed by a cross-section of American families three years ago. Evidence of a basic feeling of optimism and confidence also appears when we look at people's personal financial expectations. A third of consumers expected in June 1957 that they would be better off in another year, and slightly more expected a better income "a few years from now." Most of the remaining people expected no change. Fewer than one in ten families now foresee a worsening of their financial situation either within the immediate or the long range future. Moreover, many people seem to hold the view that an "average" year for them is one during which they improve their financial position.

Such optimistic attitudes lead people to spend their in-

come more freely. People feel that an upgrading of their standard of living is justified, that they can afford newer and better consumer goods. Often they use consumer credit to achieve this upgrading of their possessions, hoping that, with a rising income, payments will not be burdensome. Or, they may draw temporarily on savings accumulated for emergencies or retirement, again in the expectation that these savings will shortly be replaced. Precautionary saving, the negative motive for saving, assumes lesser importance under these circumstances.

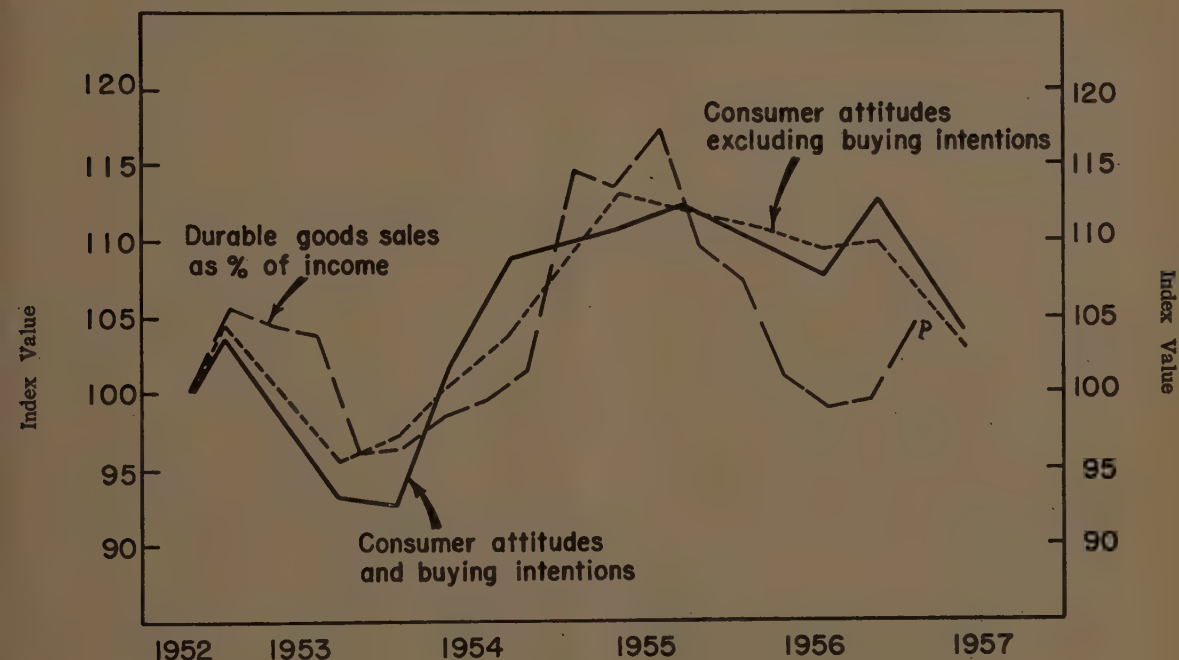
Even though a basic feeling of confidence has prevailed in the past few years, consumer optimism has not been constant. Considerable short run fluctuations in optimism were brought about by changes in the economic environment such as the level of employment, the changing business news, the frequency and extent of income increases, and changes in prices and other market conditions. This point is illustrated by the accompanying Chart. The Chart depicts the Survey Research Center's Index of Consumer Attitudes and Buying Intentions composed of answers to eight attitudinal questions: (1) whether the family is better or worse off than a year earlier, (2) its personal financial expectations for the coming year, (3) its one-year expectations regarding business conditions, (4) its longer range economic outlook, (5) its appraisal of buying condi-

tions for household goods and clothing, (6) price expectations, (7) buying intentions for houses, (8) buying intentions for cars. Such a composite index is a better indicator of consumer optimism and confidence than answers to a single attitudinal question. The Chart shows that this Index of Consumer Attitudes was at a peak in late 1952, following President Eisenhower's first election. Consumer optimism declined during the recession which followed the termination of the Korean War, it rose sharply in 1954 and reached a peak in 1955. In 1956 some weakening of optimism occurred; the decline in optimism became pronounced in the first half of 1957. The decline since 1955 is particularly interesting since it occurred during a period of rising consumer incomes and was in fact accompanied by less active spending.

Also plotted on the Chart is a line showing the percentage of disposable income spent on durable goods such as cars, furniture, and household appliances. We see that these

expenditures are greater at times when consumers are optimistic than at times when their confidence has been impaired. We do not as yet have sufficient data to determine whether pessimists save a greater proportion of their income than optimists, and particularly whether they add more to their savings accounts and Government Bond holdings. However, Department of Commerce aggregate data on personal saving suggests that saving does increase when optimism is impaired. According to these data, saving by consumers amounted to 8.3 percent of disposable income in the first quarter of 1954, a low point in consumer optimism. The savings rate declined to 5.8 percent of disposable income by the 3rd quarter of 1955, when consumer optimism reached a peak; and it was up again to 7.6 percent in the last quarter of 1956. Probably, saving rises when optimism is impaired, because saving against a "rainy day" assumes greater importance. People may then feel a greater need to add to their savings; they may be more cautious in incur-

### CONSUMER ATTITUDES AND DURABLE GOODS SALES



The Survey Research Center's Index of Consumer Attitudes and Buying Intentions is an average of eight attitudes: recent change in own financial situation, expected change in own financial situation, one-year business outlook, five-year business outlook, evaluations of buying conditions for household goods, price expectations, plans to buy home, plans to buy automobile. For each series the formula "percentage of favorable responses minus percentage of unfavorable responses plus 100%" was used. Nov.-Dec. 1952 = 100.

Consumer Attitudes, Excluding Buying Intentions, differ only in that they exclude plans to buy home and plans to buy automobile.

Durable Goods Sales as % of Income — seasonally adjusted sales of durable goods as a percentage of disposable income (U. S. Department of Commerce). Fourth quarter 1952 = 100. The figure for first quarter 1957 is preliminary, indicated by a P on the graph.

Source: "Consumer Optimism Weakening," Survey Research Center (Published by Foundation for Research on Human Behavior, Ann Arbor, July 1957).



Table 2

Preferences for Investments with Fixed vs. Variable Money Value

Preference:	All People with Incomes \$3000 or over*			People with Incomes \$7500 or over		
	June 1954	June 1955	June 1957	June 1954	June 1955	June 1957
"Fixed money value" only	69%	67%	60%	55%	52%	44%
Savings accounts	19	20	22	14	13	14
Savings bonds	43	39	32	34	32	23
Both	7	8	6	7	7	7
Combinations of fixed and variable values	8	12	10	10	21	14
"Variable money value" only	20	20	29	33	25	42
Common stock	8	8	12	16	10	20
Real estate	11	11	15	15	12	20
Both	1		2	2	3	2
None; uncertain	<u>3</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>2</u>
Total	100%	100%	100%	100%	100%	100%
No. of cases	1068	666	798	194	121	227

\* In June 1957 only people with incomes of \$4000 or over are included.

The question was: "Suppose a man has some money over and above what he needs for his expenses. What do you think would be the wisest thing for him to do with it—put it in a savings account, buy government savings bonds with it, invest it in real estate, or buy common stock? Why do you make that choice?"

ring additional debts or in drawing temporarily on past savings.

Some people have expressed the fear that a long period of prosperity would bring forth an excessive amount of saving and insufficient spending. This view ignores the likelihood that prosperity, by raising people's optimism and confidence, will reduce the motivation to save for a "rainy day" and will increase people's willingness to go into debt or to draw temporarily on their accumulated savings. In other words, it underrates the variability of the precautionary motive for saving.

On the other hand, there are business analysts and economists who now go to the other extreme. They argue that prosperity is destroying the desire of the American people to save. This idea is plausible only if we think primarily in terms of the precautionary motive for saving. We have seen earlier that positive motives for saving, such as providing for retirement or children's education, are widespread and have not weakened in recent years. Indeed there is reason to believe that such motives are particularly strong in a prosperous society.

The fact that we seem to live in an age of inflation is sometimes adduced as another reason why the rate of saving is likely to decline. The effect of inflationary expectations on people's willingness to spend or save is very difficult to assess, and so far we know much too little about this very crucial problem. A tentative impression is that expectations of price advances have relatively little effect on the

amount spent or saved by consumers, unless the price advances are larger, more widespread and more persistent than they have been in the past five years. By referring to the last five years, the period of the Korean War, when price increases were larger, is excluded. At that time we witnessed a consumer buying wave, followed by a period of pronounced buying resistance. However, inflationary tendencies of the kind we have experienced in the most recent past may gradually modify people's preferences among the savings media. We shall return to this point later on.

We turn now to the question whether consumer motivations to save are responsive to higher interest rates. An attempt to study this question was made in a survey in June 1957. Obviously people who do not know about higher interest rates cannot be influenced by them. Since consumers often are poorly informed about significant economic events, the first step in our June 1957 study was to determine whether people had heard of the changes which have taken place in the interest paid on savings. We found that the interest rate hikes have not gone unnoticed. One out of every two families was aware of the change this June. The proportion was close to three out of every four among families with incomes over \$7500 who generally are better informed. It may appear surprising that among upper income families with an income over \$7500 as many as a fourth had not heard of the rise in interest rates. Yet we may conclude from these findings that people are fairly well informed. Thus it is possible for the increase in the price

paid for savings to have altered people's behavior with respect to saving. This problem was approached from several angles.

A question designed to bring forth spontaneous opinions was asked prior to any mention of interest rates. This was done on the assumption that, once the topic of changes in interest rates is mentioned, some people's responses may be influenced. The introductory question was: "Recently many people have increased their savings. Have you had any special reasons for wanting to save in the last few months?" Less than one-half of one percent of all people mentioned higher interest rates as a special reason for wanting to save in the last few months. The reasons given, and their approximate frequency, were essentially the same as those brought forth by similar questions two or even five years ago. We found no evidence that reasons to save have been altered significantly by tighter money conditions.

Next, we used a more direct approach. Following our question about information regarding higher interest rates, we asked the people who were aware of the increase in interest rates: "Does the increase in interest rates make a difference to you personally?" This, we felt, was a rather suggestive question. Nevertheless, only 21 percent of a representative sample of American adults answered in the affirmative. Among higher income people 31 percent said that higher interest rates make a difference to them. In what way do higher interest rates matter? Primarily by bringing about a somewhat higher return on existing savings. Only a small proportion of people, 2 percent of low-income and 5 percent of high-income people, said that because of higher interest rates they are saving more.

It appears from these responses that even though higher interest rates do not motivate many people to save, people do think about the rate of return on their investments. We may therefore ask what influence interest rates have on people's choices of savings media. In turning to an analysis of people's investment preferences we may look for effects of two developments during the past two years: of the higher interest rates as well as of the growing inflationary sentiment.

In June 1957, as well as repeatedly in past surveys, respondents were asked what in their opinion would be the wisest place to invest money not needed for current expenses. Four choices were given: savings accounts and U.S. Government Savings Bonds—both representing investments with a fixed money value—and common stock and real estate—both investments with a variable money value. Table 2 shows the trend of the answers over the last few years given by cross-sections of people in the middle and upper income groups as well as by high-income people alone. It appears that during the past two years there has been some increase in the popularity of investments with a variable money value. In June 1955 "combinations" such as "put some money in common stock and some money in a savings account" were frequently mentioned; in June 1957 mentions of stock and real estate only had become more frequent.

Analysis of answers to subsequent questions, in which people were asked to explain their preferences, indicate that the first consideration which governs people's investment

choices is familiarity with the various savings media. In this respect savings accounts and Savings Bonds rate much higher than common stock. Many people dismiss stock with the comment: "I don't know anything about stock." Repeated past studies indicate that Government Savings Bonds are familiar to many low income people, and the same is true of savings accounts. In addition, especially in rural districts and small towns, investment in real estate is an activity with which many people, even with low incomes, are acquainted.

In addition to familiarity, safety is a factor frequently named as an explanation for investment preferences. Safety is valued very highly in U. S. Savings Bonds and also in savings accounts. Convenience and liquidity are further factors which lead to a preference for savings accounts. However, such considerations as familiarity, safety, liquidity and convenience play a more important role with lower and middle income people than with the well to do. Lower and middle income people therefore have a particularly strong preference for savings accounts and Government bonds. Yet, many lower and middle income people do not save or save only small amounts. The investment choices of people with incomes of \$7500 are of much greater practical significance.

In the upper income brackets a liking for common stock, either alone or in combination with other investments, was expressed by a substantial proportion of people in June 1957. In explaining their preference for common stock, upper income people most commonly spoke of satisfactory returns obtainable on common stock investments or favorable experiences with common stock in the recent past. "Stocks seem to be doing well these days" is the way many respondents formulated their explanation. Explicit references to hedging against inflation were much less frequent. Yet, we found that among upper income people who prefer

Table 3

**Choice Between Savings Bonds and Savings Accounts**

<u>Preferences</u>	<u>All People</u>		
	<u>Dec. 1952</u>	<u>Apr. 1956</u>	<u>June 1957</u>
Savings Bonds	55%	52%	51%
Savings Accounts	24	32	37
No difference	n.a.	3	3
Both	7	5	2
Uncertain; not ascertained	<u>14</u>	<u>8</u>	<u>7</u>
Total	100%	100%	100%
Number of cases	1133	1676	1356

The question was: "Now suppose a person had to choose between Government Savings Bonds and a Savings Account. I mean savings accounts with banks or with savings and loan associations. Which should he choose, in your opinion?"



Table 4

**Choice Between Savings Bonds and Savings Accounts, by  
Perception of Interest Rate Difference Between Them**

April 1956

Preference:	Perception of Interest Rate Differences*		
	Higher interest on Savings Bonds	Higher interest on savings accounts	No difference in inter- est on Savings Bonds and savings accounts
Savings Bonds	67%	25%	18%
Savings accounts	22	61	28
Both; no difference	6	7	16
Uncertain; not ascertained	<u>5</u>	<u>7</u>	<u>8</u>
Total	100%	100%	100%
Number of cases	503	169	259

\* People who were uncertain about differences in interest are excluded from this table; they comprise about 40% of the sample.

The questions were: "Do you think there is any difference in the interest they pay on Savings Bonds and on savings accounts? What is the difference?"  
See also question to Table 4.

common stock and real estate investments, 50 percent believe that prices will rise over the next five years or so; among people who preferred Bonds and savings accounts only 33 percent had such inflationary expectations. Thus it appears that inflationary expectations, contributed toward the growing popularity of common stock, although the favorable performance of stock investments in recent years seems to be the primary factor. There is no evidence in the June survey that the narrowing of the spread between returns on common stocks and returns on bonds and savings accounts has adversely affected attitudes toward common stock. Possibly this is the case because investors think of their return as consisting both of the dividend and the increase in the price of the stock. These findings regarding the reasons for stock preferences relate, of course, to the bulk of people with incomes over \$7500, but not necessarily to the small number of very large investors.

Following the question about fixed vs. variable money value investments, respondents have been asked repeatedly in recent years to express a preference between Government Bonds and savings accounts. Many more people chose Bonds than chose savings accounts. This has been true throughout the postwar period and was also true this June in all income groups. However, during the last few years the proportion of those who "voted" for savings accounts has risen substantially (Table 3). This shift in preferences is paralleled by a shift in ownership, as is indicated by the following figures from the Surveys of Consumer Finances:

Percentage of Spending Units who Owned:	1950	1957
Savings accounts	42%	50%
Savings bonds	39	32

Changes in interest rates seem to provide at least a partial

explanation for this shift in preferences and ownership. A year and a half ago we found that those people who are under the impression that savings banks in their locality pay more interest than Government Bonds expressed a preference for savings accounts much more frequently than those who had the opposite impression about interest rates (Table 4). In the meantime statements to the effect that "banks pay good interest" have become more frequent. When questioned about higher interest rates, most people who were informed reported this June that banks in their locality had raised their rates. References to an increase in the yield of Government Savings Bonds were much less frequent. Possibly since June more people have learned about the recent hike in interest rates on Government Bonds.

#### CONCLUSION

Before summing up, it should be emphasized that these are very difficult questions to investigate empirically and that much more research is needed. Research to date suggests that changes in interest rates of the magnitude which have occurred in recent years, do not affect substantially the amount which consumers save. But it does appear that the rate of return obtainable from different savings media influence people's choice between these media. This is particularly true of upper income investors, although some increase in preference for savings accounts over Savings Bonds also is evident among middle income people. In the middle and lower income groups, familiarity, safety, and to a lesser extent liquidity very often are more important considerations than the rate of return. So far inflationary expectations seem to be affecting choices of savings media only among upper income people, and even there to a relatively small extent.

# Bob Dalbeck

Where do you get the extra \$100,000?

"Some critics of business still maintain that profits are too high.

"I wonder if they have any idea of how much more it costs to do business today than it used to? Union Oil is a typical example.



"In 1927, the company bought an 80,000 barrel storage tank for \$25,000. Under Federal Income Tax laws, we were permitted to recover our investment over 30 years, the life of the tank.

"By 1957, when it's time to replace the tank, the company has set aside \$25,000. But what has happened? Due mainly to inflation, higher wages and material costs, the tank now costs \$125,000.

"Where do you get the extra \$100,000? Union Oil gets it out of profits, and by increasing indebtedness from time to time. Out of profit? The fact is, we have to sell \$1,250,000 worth of products to earn \$100,000 after taxes.

"Put another way, the company's entire profit for one day, the total earnings that day on \$400,000,000 invested by share owners, and the efforts of over



BOB DALBECK: "WITHOUT PROFITS, YOU AND I WOULDN'T HAVE A JOB."

8,000 people—all went to replace one 80,000 barrel tank, of which we now have over 150.

"Without profits, Union Oil couldn't afford to replace that tank. And without the new tanks and other equipment we

have to replace to stay in business, there'd be no jobs for any of us!"

\* \* \*

Bob Dalbeck is something of an authority on profits. He is an Assistant Comptroller for the company.

He estimates that only about 19 minutes in the average company's 8-hour working day go to earn a profit. The rest is spent paying for the cost of doing business.

And less than half of those 19 minutes result in dividends to share holders. The other 9½ minutes are reinvested in the business to keep it up to date and competitive.

YOUR COMMENTS ARE INVITED. Write: The Chairman of the Board, Union Oil Co., Union Oil Bldg., Los Angeles 17, Calif.



## Union Oil Company OF CALIFORNIA

MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL



WINN-DIXIE STORES NOW

**4<sup>th</sup> IN EARNINGS  
7<sup>th</sup> IN SALES**

AMONG ALL RETAIL FOOD STORES

# OVER A HALF BILLION IN SALES— THE FASTEST GROWING FOOD CHAIN IN THE SOUTH

**WINN-DIXIE SALES** passed the half-billion mark — up a big 21.89% over last year.

**WINN-DIXIE EARNINGS** after taxes for the fiscal year ended June 29, 1957, rose to \$1.71 per Common Share—up 24¢ over last year.

**WINN-DIXIE DIVIDENDS OF \$5,217,804** were paid monthly at the rate of 7¢ per share against 6¢ per share in the previous year. The rate per share per month for fiscal 1958 has been increased to 8¢—the 14th consecutive year in which the dividend rate has been increased and the 24th consecutive year that cash dividends have been paid.

**WINN-DIXIE GROWTH** continues with plans to open 45 new super-markets—23 of them before January 1st. Sales of between \$560 and \$570 million—with comparable earnings—are anticipated for the coming year.

## COMPARATIVE RESULTS AT A GLANCE

	FISCAL YEAR	
	6/29/57	6/30/56
<b>SALES</b> .....	\$513,549,316	\$421,327,312
% Increase .....	21.89%	17.49%
<b>EARNINGS BEFORE INCOME TAX</b> ....	\$ 21,681,983	\$ 17,618,601*
Per Common Share .....	\$3.48	\$2.84*
<b>NET EARNINGS AFTER TAXES</b> .....	\$ 10,625,983	\$ 9,138,601*
Per Common Share .....	\$1.71	\$1.47*
<b>DIVIDENDS PAID</b> .....	\$ 5,217,804	\$ 4,404,948
Per Common Share .....	\$ .84	\$ .72
(Present annual rate 96¢)		
<b>STOCKHOLDERS' EQUITY</b> .....		
Common .....	\$ 44,321,259	\$ 38,606,228
<b>NET WORKING CAPITAL</b> .....	\$ 40,469,059	\$ 38,788,751
Ratio Current Assets to Current Debt .....	\$3.13	\$3.53
<b>UNITS IN OPERATION</b> .....		
Retail Stores .....	462	412
Wholesale Units .....	10	10

\*These figures do not include a special credit of \$1,287,074, or 21¢ per Share, representing profit of a non-recurring nature arising from involuntary conversion of property destroyed by fire.



Copy of complete  
Annual Report  
available on request.

## WINN-DIXIE STORES, INC.

AND SUBSIDIARIES

Operators of Retail Food Stores in  
Florida, Georgia, Alabama, Mississippi, Louisiana,  
South Carolina, North Carolina, Kentucky and Indiana

GENERAL OFFICES: JACKSONVILLE, FLORIDA

# Are Stock Rights Obsolete?

NORVIN R. GREENE

GENERAL MOTORS, SOCONY MOBIL, National Gypsum, IBM, Babcock & Wilcox, Anaconda and Armco have recently issued stock rights to raise additional equity capital. Standard Oil of New Jersey and Royal Dutch Shell announced they will use this method in the near future. Adoption of any device by so many notable corporations might lead to the conclusion that this must be the best method. Surprisingly, there is at least some evidence that it is not.

Advocates of and apologists for stock rights indicate (1) that in all fairness each stockholder must be given the privilege of maintaining his proportionate interest in the business, (2) that many company charters require equity offerings be made first to the stockholders, (3) that present stockholders constitute the most ready reservoir of new share capital available to the company and that large equity issues of \$50 million and more are probably saleable only through the rights device, (4) that if rights were not offered to shareholders many of them would not be aware of the stock offering, (5) that most shareholders like rights and that it is a matter of good stockholder relations to give them what they want.

This case on face may appear to some established, and perhaps it is, Yet, according to Plato, every coin front has its back; each good its bad. So investigation of both sides of the stock-rights problem should be made before reaching a conclusion.

The author has made a limited telephone survey of underwriters, investment counsel, investment trusts, bank trust officers, stock exchange firm partners, insurance and pension fund executives. An overwhelming number of these persons expressed in no uncertain terms their opposition to stock rights. Perhaps a wider survey would have shown different results, but the fact that any survey of financial professionals could reveal almost a unanimity of disillusionment about stock rights seems significant.

## COMMENTS ON STOCK RIGHTS

Here are a few of the comments: "Raising capital by stock rights costs more," "stock rights appeal to the unsophisticated stockholder," "the rights method tends to put too many new shares in weak hands," "the reservoir of the company's shareholders can also be utilized in direct underwriting" and "the whole rights process is a damn nuisance." Apparently some are not just unenthusiastic; they consider the system bad. Why?

What investment counsel or investment trust officer has not experienced repeated instances of a client insisting on exercise of share rights because "one cannot afford to pass up the bargain price" at which the company offers new shares to old stockholders. This is, of course, just not so. A company whose shares sell at 55 offers to shareholders 10 shares of new stock, for each 100 shares already held, at a price of 45. This privilege has a present cash value of

\$100 if the shareowner elects to subscribe. If not, he can sell his rights to someone else for \$100. The stockholder then suffers no present loss by his decision not to subscribe new capital. Investors often do not understand this. They may even, in violation of investing principles, borrow the subscription money in order not to lose their bargain-purchase rights. Is it wise for an investor to time a commitment to fit the company's idea of when its shares are selling at a price advantageous for it to sell new shares? Would not an investor be better advised to buy only when he has available funds and to select shares which he judges to offer the best value for the price?

It may be protested that if every shareholder exercises his rights, each maintains his same percentage ownership and it makes no difference whether the stock is underpriced, overpriced or fairly valued, when rights are offered. This sounds convincing. In practice, however, few publicly held corporations resort to equity financing when their shares appear to management to be unduly depressed. Some executives, with no hesitation, say that this would be bad trusteeship. Limiting use of rights to periods of reasonable equity prices recognizes what every one in the financial community knows to be true, that a large volume of rights are sold rather than exercised by the shareholders who receive them. Heavy rights-trading on the New York Stock Exchange provides evidence of this fact. Although there have been some notable higher-percentage stockholder subscriptions, it has been estimated that on the average 60% of shareholders sell their rights. Does the poorly informed investor who borrows funds "to secure a bargain" constitute the most desirable purchaser? This seems open to question. In periods of weak markets and fear psychology is it not likely that the loan created to purchase additional shares will be liquidated by their sale? If so, this buyer is not a strong holder and can become an unfavorable influence on the market price of the shares.

Rights also appeal to the greedy, often unintelligent, speculator. Through a quirk in Securities and Exchange Commission regulations, to exercise rights one can borrow on a margin of 25%, compared to the present margin of 70% which governs most security Stock Exchange trading. Presumably the objective of the ruling was to make it easier for corporations to raise new equity money. The effect in declining security markets seems to have been illustrated in recent events. Markets in Babcock & Wilcox, National Gypsum, Outboard Marine, and even IBM have run into necessitous liquidation from "underwater" so-called "rights accounts." On only one day recently the partner of one Stock Exchange firm told the writer his firm was forced to liquidate four such accounts and that he knew of another firm which on the same day had to sell out seven "rights accounts." This type of shareholder is a weak holder, a poor avenue for any company to use in its efforts to obtain equity capital. cursory observation of markets



for these stocks seems to indicate that they have been adversely affected by "rights accounts" sell outs. To think that this influence is a principal adverse influence in their recent poor market performance would be a mistake, but to deny that in a declining stock market this is a contributing adverse factor would be unrealistic. It should be noted that in strong rising share markets issuance of rights in some instances has been followed by a strong upward surge in a stock's price. The last General Motors subscription rights are a case in point. It might be argued either that this rise was because of or in spite of the rights. Study of the action of many stocks following rights issue and following direct share underwritings, in both up and down markets over a period of years, might help evaluate the degree of market influence properly attributable to rights financing.

#### DIRECT SALE OF SHARES FOR FINANCING

To effect common stock financing, the alternative to rights offering is direct sale of shares by underwriting. Before a company's first direct sale waiver of pre-emptive stock subscription rights by shareholders may be necessary. This is not an insurmountable hurdle. It has been effected by a number of highly regarded corporations. Three which come to mind are General Dynamics Corp., The Trane Co. and Caterpillar Tractor. Any large corporation which enjoys the confidence of its stockowners should have no difficulty securing the required waiver. To provide a broader equity base for its rapidly growing business Trane has twice in the past two years sold new shares through straight underwriting. Observation of its recent market price fluctuations suggests that the new subscribers may be stronger holders than rights-subscribers. Undoubtedly there are added reasons for Trane's relatively better recent price action. A study of a large number of samples might aid in determining the accuracy of the writer's suspicion that direct underwriting produces superior market performance for its shareowners. Such underwriting does not try to take advantage of the ignorance of some of its stockholders; it does not encourage speculators to buy on an abnormally thin margin. It appears to invite, to buy its shares, many more of those investors who have funds presently available and perhaps those who are more apt to weight the new underwriting shares price in relation to other opportunities open at the time. Direct distribution can be effected with a minimum of fuss and time, and some underwriters contend at a cheaper price to the company. This is disputed by the underwriters who champion the rights method. The period of underwriter risk-exposure is less in direct placement. This should make possible a lower fee. However, rights underwriters claim the ready-made shareholder market together with the rights device enables them to work for a lesser fee. The relative effect on market price must obviously be considered, in arriving at any conclusion about over-all cost to the owners of the corporation.

What about maintenance of shareholders relative interest in a company? Rights have an understandable historical *raison d'être*. When companies were generally much smaller and when often large percentages of a company were held by one or more individuals or families, control power

might be shifted through equity underwriting in which some large interests were not able to secure shares in the stock underwriting sufficient to maintain position. Even a large investor, apart from voting power, might wish to secure more stock than it could acquire in a thin market. An underwriting might be regarded as an acquisition opportunity, but subject to the underwriter playing favorites. In the days of the robber-baron captains of industry there were numerous instances of managements selling new shares to themselves whenever to their advantage. Stock rights provided the protection demanded by non-management shareowners. The large increase in size of our leading corporations has created vast numbers of outstanding shares and very broad markets. For all practical purposes almost any investor in a large company can readily acquire in an underwriting or in the open market, whatever number of shares he may be ready to pay for. Control power can hardly figure as a consideration in a company in which no one even approaches ownership necessary for voting control. Fewer and fewer of our corporations remain in the hands of the founding families or small groups. This trend has already progressed far enough that it provides diminishing reason for continuation of the stock-rights system.

Some stockholders who sell rights regard the proceeds as an extra dividend subject only to capital gains tax. This appears somewhat naive. The reason a rights seller may treat his proceeds as capital gains is that in effect he has disposed of a portion of his interest in the company. He could accomplish the same end by sale of a few of his shares. Money from disposal of rights is definitely not a dividend. It is a misapprehension to think so. The direct underwriting is at the market and requires fewer new shares to raise the same number of new dollars and so creates less equity dilution. What the shareholder received from sale of rights is a compensation for greater dilution than by a direct offering.

The bank trust officer who said "the whole rights system is a damn nuisance" expresses the opinion of a growing number of shareholders and their agents. The agents feel they cannot charge fees commensurate with the work involved in handling rights. Too often the amounts involved are very small, \$100, \$50 and even smaller. To charge the actual cost of handling would appear too large in proportion to the proceeds. So handling of rights becomes a break-even or loss service, in effect an assessment by corporations on financial agents. Stockholders themselves find the stream of rights troublesome; especially is this true of the large number of shareholders who sell. For small dollar value the attention required is substantial. In recent years, for the diversified share investor, there has been a constant stream of these petty annoyances. Not infrequently a stockholder is in Europe or just out of town when rights come in. At the office a secretary's time may be consumed getting in touch with her principal. At home, expiration time can come before the rights paper can be or at any rate is dealt with. The writer has more than once been handed a bundle of accumulated expired rights and asked, "What shall I do with these?" The investor is never pleased to find that he or she has "tossed out of the window" dollars aggregating quite a considerable sum. Even when the dollar

amount is small the investor is hardly happy about the loss.

Underwriting advocates of rights say the percentage of so-called "sleepers" is about 1%. This surely is not large. Still, it is undesirable to have any unhappy shareholders lose part of their investment if it can be readily 100% prevented.

One who has listened for years to shareholder questions and complaints about rights finds it difficult to accept the assertion that stockholders overwhelmingly like rights and that good public relations demand their continuance. If a wide sampling should show that the majority of shareholders do like rights, possibly major companies ought to conduct a stockholder educational campaign. If it is true that the system is today bad for the shareholder and for his agents, then it appears wrong to continue an antiquated system which has outlived conditions which were responsible for its adoption.

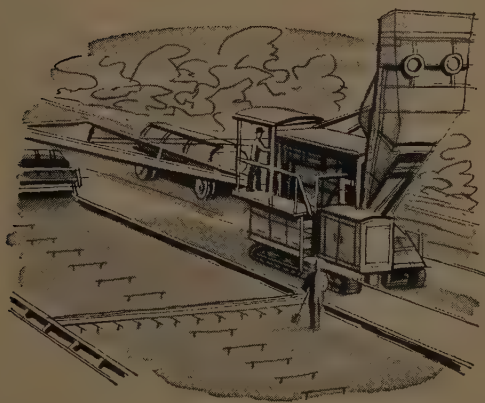
Does securing capital by the stock-rights method cost the company more than straight underwriting? This question we repeat. One of those queried by the author has made a lengthy study which has convinced him that rights constitute an expensive method of financing. He finds that when it becomes known that a rights offering is coming the company's shares decline significantly, that this depressed state lasts through the exercise date and that the price is often further depressed by knowledge that the rights underwriters have large amounts of shares to dispose

of through "lay-off" on a commission basis. A direct underwriting can be accomplished with more expedition and less deleterious effect on share market price—so his study has shown. Rights underwriters counter that announcement of direct share placement also tends to adversely affect market price, that there is little difference.

The assertion by investment bankers who advocate rights that large share distributions can be accomplished only by rights is not accepted by other investment bankers, who cite the recent Caterpillar Tractor issue, approaching \$50 million, and direct sale of Ford Motor shares by the Ford Foundation in the amount of \$654 million. Furthermore, if it were true that large equity offerings cannot be sold directly, it is not appealing to think that only by a kind of subterfuge can investors be induced to buy shares of a company in large dollar amounts.

As stated in the beginning, this article has attempted to present the reverse side of the rights coin. The subject is worthy of more intensive study than given here and more than the writer has found available elsewhere. The large corporations which now use the rights system might find it useful to subsidize a study by qualified financial analysts. The Investment Bankers Association has appointed a committee to report to it on this subject. It is expected that in late November of this year the study will present both sides of the controversy. The reader may wish to obtain a copy of this report from his investment adviser.

## Blaw-Knox makes what it takes ...to speed the nation's road building



On turnpikes, expressways and busy city streets, Blaw-Knox equipment is on the job producing stronger, easier riding surfaces at lower cost.

In an ultra modern plant at Mattoon, Illinois, Blaw-Knox designs and produces the kind of equipment that delivers more road for the dollar. Batch plants, buckets, truck mixers, industrial grating, steel forms—all are part of a complete line. This single source of supply and service has paid off in all phases of public utility and construction activity.

This is just one part of the Blaw-Knox picture . . . one segment of the wide variety of products and services that contribute to the growth of many industries. For the complete story, write for your copy of "This is Blaw-Knox." Blaw-Knox Company, 300 Sixth Avenue, Pittsburgh 22, Pennsylvania.

**BLAW-KNOX**

**SERVING FOUR MAJOR MARKETS**

Metal production; Highway and public works construction;  
Process industries; Public utilities and general industry





## TRACKWALKER WITH A PH.D.

**Melvin Janes**, a friendly, sandy-haired man in his early forties, may well be the world's only trackwalker with a doctor's degree.

Since 1953, Dr. Janes has trudged many a mile along railroad tracks from Maine to Texas. His mission: to check with his own eyes the killing power of a unique railroad-bed weed destroyer.

Weeds are a menace to railroad men. They are a fire hazard; wheels slip on them; they hold moisture which rots the ties and undermines the roadbed; they make maintenance difficult. More than 50 kinds of weeds grow along the tracks. Some die easily and stay dead—but many are too tough for ordinary weed killers.

When Mobil scientists developed a promising new oil-based killer—**AGRONYL R**—Dr. Janes took to the tracks to check it out. It killed the weeds, all of them. Moreover, it's heavy and doesn't blow on to adjacent farmland. It leaves a film that discourages new growth (and also helps keep the tracks from rusting).

You can't buy **AGRONYL R** herbicide for your garden weeds. It wouldn't work in your home sprayer anyway. It was created for a specific job—and it does that job without equal.

In the same way, Dr. Janes and his fellow scientists develop countless other **MOBIL** products for the special needs of *your* business, *your* car, *your* home. Whether it's a motor oil or a gasoline or a gear lubricant, it's unique in its field. And you can depend on its quality—for it is a product of Mobil's master touch in oil.

For more information about Mobil research and development activities, write to Room 2400, Socony Mobil Oil Company, Inc., 150 E. 42nd St., New York 17, N. Y.



**SOCONY MOBIL OIL CO., INC.**  
Leader in lubrication for 91 years

# Collective Forecasting of Business Activity

JAMES DOWD

*"The Moving Finger writes; and, having writ,  
Moves on: nor all your Piety nor Wit  
Shall lure it back to cancel half a Line,  
Nor all your Tears wash out a Word of it."*

—Omar Khayyam

SOMEDAY A SCIENTIST turned philosopher. He might well have been pondering the fallible utterances of those who forecast human affairs, from the king's astrologer to the corporation analyst. For the essence of science is predictability. . . . Yet humans are compelled to look ahead, however unscientifically, and therefore to forecast, whether their personal needs or the requirements of a nation.

The lonely prophecies of the individual practitioner have now been supplemented, thanks to an enterprising press, with the year-end roundup of executive opinion. But this miscellany of notions can hardly be considered collective forecasting. More to the point are the panel and the round table, the forum and the seminar. By these means a variety of views, often of expert experts, is communicated replete with details of assumptions, qualifications and conclusions. Under such circumstances, a precise forecast concurred in by the group as a whole may not often be achieved. The audience is left to pick and choose. This again is scarcely collective forecasting.

Now the basis for civilization is the ability of individuals to accomplish more by working together than apart. So if a number of individual forecasters were to meet periodically as a group, discuss and prophesy, and then provide an exact expression reconciling their diverse opinions, we would have, presumably for better, a collective forecast.

The reader might well inquire: Could individuals actually forecast as a group? And would the accuracy of their forecasting approach the predictability of science?

## COMPOSITION OF A FORECAST GROUP

To attempt some answers, it may be advisable to examine the private records of a group of business analysts who have been regularly forecasting the Federal Reserve Index of Industrial Production since World War II. The group operates under a policy of anonymity, since an off-the-record atmosphere produces a more open interchange of opinion and makes possible unhedged, quantitative forecasting in writing (a practice generally eschewed to avoid the calamity Omar describes).

What can be said about the group itself is this: It reflects a cross-section of the economy—manufacturing from food to steel; distribution, utilities; services, plus government and academic representation. Membership has not been constant: there have been both turnover and growth. Eight analysts contributed to the first forecast; thirty-eight to the latest.

The group bias is big business, big city, Eastern—al-

though a sprinkling of smaller companies and smaller communities and other areas are included. The job titles are varied: for example, vice-president, economist, director of commercial research, financial analyst, professor. Men in their late thirties to their early sixties, they tend as a group to approach forecasting with the so-called "practical businessman's attitude"—direct, concerned, relatively unsophisticated, impatient with theory.

Although the forecasting is by no means limited to the FRB Index, this indicator has been used from the start as the common denominator of the membership in measuring the business outlook. It has the advantage of being a gauge of physical volume, uncomplicated by inflation. Other economic series were later added to the group's activity, but they have as yet too short a forecasting history for substantial analysis.

## THE ANNUAL FORECASTS

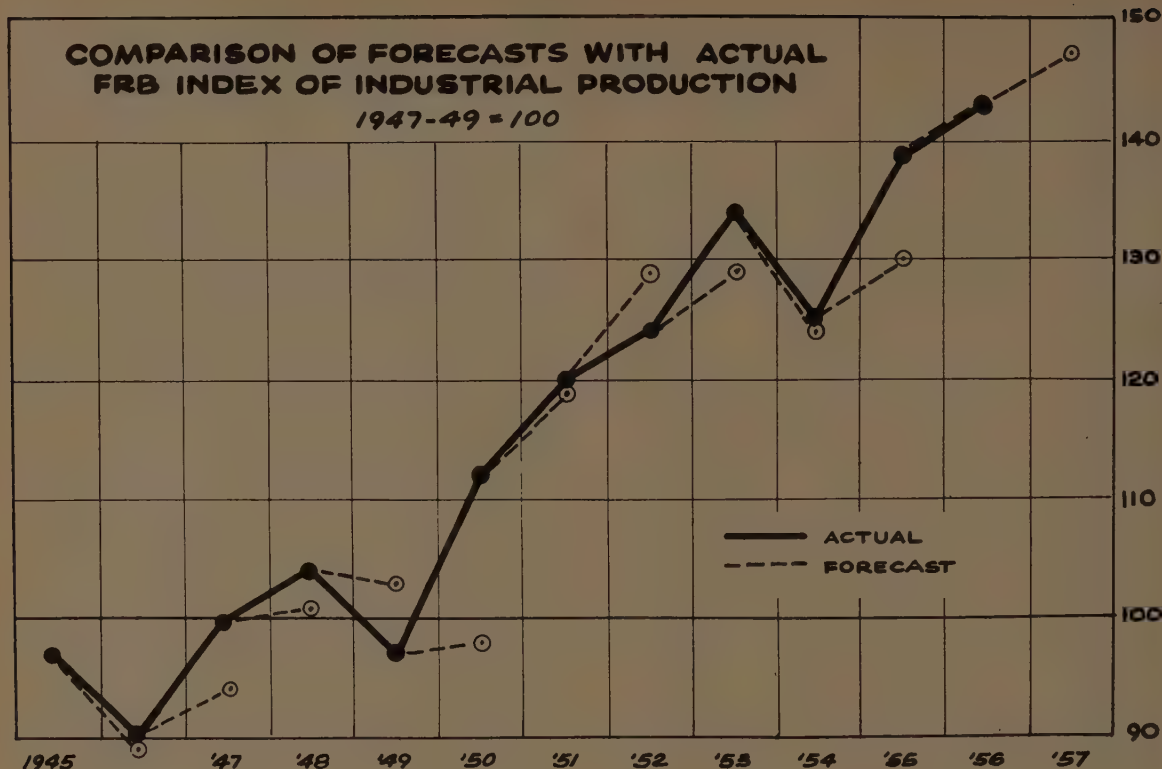
In what follows, all data and comments are based on medians, since the ranges have usually been too broad, and arithmetic averages are inappropriate. The forecast for 1946 was on an annual basis. Since then, every six months, forecasts were made for the ensuing three half-years on a seasonally adjusted basis. In mid 1955, the forecasting was curtailed to the ensuing two half-years. Annual projections have been derived from the end-of-year forecasts to provide a continuous series of calendar year predictions from 1946 to the present. Chart 1 furnishes a comparison of these predictions with the actual FRB Index.

As Chart 1 shows, these annual forecasts have always called the turn, sometimes very closely and sometimes only in a slight sort of way, for example, 1950, the year of the Korean outbreak, which was certainly not foreseen in December of 1949, although, as the chart indicates, a slight pick-up from the 1949 recession was anticipated. On the average, these forecasts were plus or minus 4% from actual, with a bias\* on the low side of -2%. If the Korean outbreak year of 1950 is excluded, the forecasts averaged plus or minus 3% of actual, with a bias of -1%. Barring outbreak of war, then, half of the forecasts were 3% or closer to the actual. By way of comparison, over this same period the average annual change in the actual Index was 8%, and it never exceeded 16%.

Chart 1 indicates a forecast of the FRB Index for 1957 of 147. Translating this forecast into probability terms based on the group's past performance, we would say that the chances are 50-50 that the actual level of business activity for 1957 will fall between 143 and 151. But as the turn has always been called so far, we should amend that

\*Bias: obtained by subtracting the percentage deviations of the low forecasts from the percentage deviations of the high forecasts; the resulting difference is then divided by the total number of forecasts to obtain an average difference—or bias—per forecast.





statement and say that the lower limit will in any event not be less than 144 (since 143 was the actual for 1956 and the forecast indicates a rise).

As a check on these annual forecasts, a fiscal year series of forecasts was computed. The margin of accuracy was poorer: forecasts averaged plus or minus 5%, with a —3% bias. (Excluding fiscal 1951, the year of the Korean outbreak, the accuracy improves: plus or minus 4%, with a bias of —2%.) Moreover, the fiscal forecasts failed to call the turn five times out of nine. It should be noted, however, that the FRB on a fiscal basis is, by virtue of statistical accident, a different animal, with only a one point recession in 1949 (compared with seven points on the calendar basis) and only a three point recession in 1954 (against a nine point drop on the calendar basis). Then, too, since most businessmen are in the habit of planning on a calendar year basis, it is more than possible that the fiscal forecast of the FRB receives less thoughtful preparation from the group. (With much government thinking on a fiscal year basis, perhaps the semanticists will find here another reason for misunderstandings between government and business.)

#### THE SEMI-ANNUAL FORECASTS

The heart of this study is concerned with the semi-annual forecasts. Just how closely can a given half-year's business activity be gauged from a vantage point six months away? Twelve months away? Eighteen months away? Here is

a table summarizing the group's experience from 1947 to date:

% Deviations of Forecasts from Actual  
(Seasonally Adjusted FRB Index)

All Forecasts:	18 months	12 months	6 months
Average deviation (plus or minus)	9%	7%	3%
Bias	—6%	—4%	—2%
Excl. Korea:			
Average deviation (plus or minus)	6%	5%	3%
Bias	—3%	—2%	—1%

Each succeeding forecast for the same half-year period on the average came closer to the mark; or, put the other way, the further into the future the forecast extended, the larger the average deviation, from plus or minus 3% for the half-year just ahead to plus or minus 9% for the half-year beginning twelve months ahead. The size of the latter deviation finally prompted the group to discontinue the eighteen-month forecast as not worth the trouble. Even with the elimination of those forecasts affected by the outbreak of the Korean War, the trend remains, although the level of accuracy improves.

Note particularly the conservative bias of the group. Over this past decade of an expanding American economy, a tendency to underrate growth persisted, abetted in the

early post-World War II years by some fears of a depression. Excluding the Korean-affected forecasts, predictions for the six months immediately ahead tended to be low by 1%; for the following six-month period, low by 2%; and for the third six-month period, low by 3%. By no means were all the forecasts on the low side. On the contrary, 30% of the six-month forecasts, for instance, were on the high side and 10% on the nose. Chart 2 shows the percentage deviations of the six-month, the twelve-month and the eighteen-month forecasts above and below the actual in time sequence.

Readers pondering this seismographic specimen might well visualize something cyclical or even cybernetic in the pattern of the deviations. However, a more fundamental explanation is revealed by relating these percentage deviations to percentage changes in the actual FRB Index. That is to say, when the deviation of forecast from actual for a given half-year is compared with the change of that given half-year's actual from the preceding half-year's actual, another characteristic of the group's forecasting comes to light.

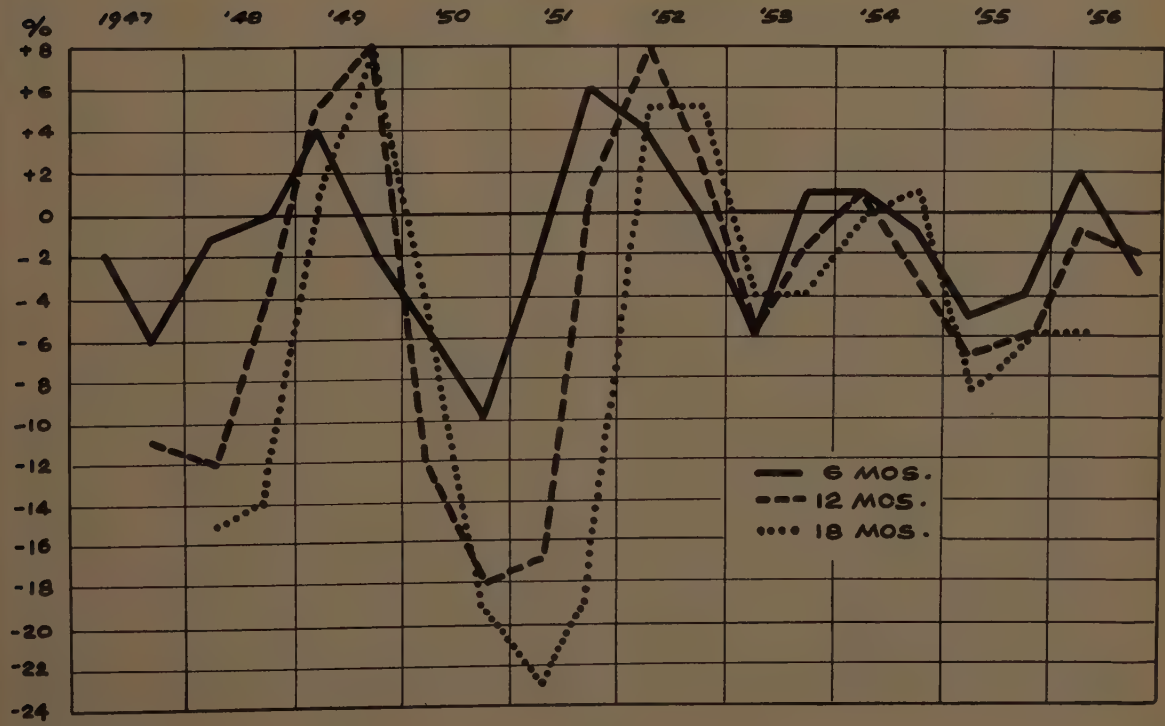
In Chart 3 the percentage change of the FRB actual from one half-year (period A) to the next (period B) is plotted along the horizontal axis, with percentage increases to the right, and decreases to the left, of the vertical axis.

The percentage deviation of the forecast for period B from the actual for period B is plotted along the vertical axis, with deviations over forecast above the horizontal axis and deviations under forecast below the horizontal axis. One plot is made for period B to represent both the percentage of actual change from period A, and the percentage deviation of the forecast for period B from the actual for period B. Thus, the point in the lower right hand corner of Chart 3 represents a forecast 10% below actual, with the actual index rising 12% from the preceding half-year.

We have already noted the conservative bias of the group. What Chart 3 unmistakably reveals is a sort of timidity—an inability to project economic change in terms sufficiently bold. Whenever the FRB moved up, the forecasts were low; whenever the FRB declined, the forecasts were high, with a lone exception. And the greater the movement of the FRB, the greater, usually, the deviation of forecast from actual. In short, the dynamics of economic change in both directions—the full extent of swings in business activity—were definitely understated.

Chart 3 shows only the six-month forecast deviations for the sake of clarity, but, as a glance at Chart 2 will indicate, the same characteristic is present in the twelve-month and eighteen-month forecasts as well: all three series move in unison, zigging when the FRB zags.

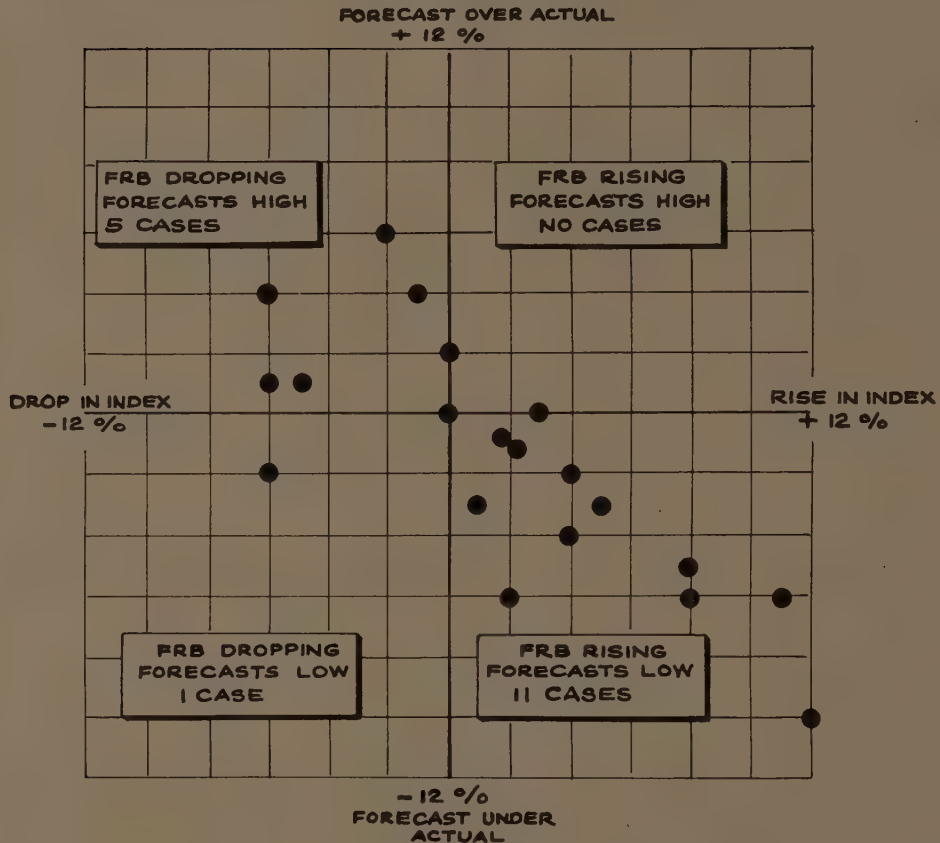
CHART II  
**% DEVIATIONS OF FORECASTS FROM ACTUAL**  
*FRB INDEX, SEASONALLY ADJ.*





# HOW CHANGES IN ACTUAL INDEX AFFECT ACCURACY OF SIX-MONTH FORECASTS

FRB INDEX, SEASONALLY ADJ.



## OTHER ASPECTS OF THE FORECASTS

The question might be asked: Has the group, as a group, shown any improvement in its forecasting marksmanship over the past decade? While the members may hope so, calculations are rather inconclusive on that point, possibly because of membership turnover and growth.

Throughout, the analysis and commentary have related to the group—as expressed by the medians of their forecasts. Since the median is the point dividing the group into a high half and a low half on any forecast, it is evident that for any one forecast, some of the analysts were prognosticating more successfully than the median indicates; and others not as well. However, it would be inaccurate to stigmatize certain of the analysts as opium smokers, because the membership composition of “the better half” shifts from forecast to forecast.

Analysis of individual performances was deliberately ignored, not just to preserve objectivity in scrutinizing group

performance, but also in recognition of the valued but intangible contribution made to these forecasts by the existence of an expressed difference of opinion. The discussion sessions would be boringly unprofitable if everyone drew the same quantitative conclusions on the business outlook from the mass of facts at hand. Indeed, there is some truth in the saw that all the economists in the world laid end to end would never reach a conclusion. With our limited knowledge of the intricacies of economic behavior, it is just as well that the median speaks for the group.

The group has thus rarely shown unanimity of opinion. Once it did, the range of forecasts was so narrow that it failed to bracket the actual! One must also note that for some members of the group, the FRB Index is not particularly useful in their respective lines of endeavor; their preoccupation with other, more favored, indicators limits their familiarity with the FRB. Then, too, each member, or certainly the majority from the business world, is concerned

more with his own particular company and industry and markets and less with the economy as a whole. As a consequence, his industry bias tends to color his forecasting.

#### CONCLUSIONS

To summarize, a group comprised mostly of corporation business analysts has produced a series of forecasts somewhat on the conservative and timid side, and more useful on a calendar than a fiscal year basis, with better accuracy for the near term predictions, as might be expected. The survival and growth of the group gives some indication of

the members' feeling of value received. At the least, it provides an opportunity for exchange of opinion on the business future. The existence of other forecasting groups testifies to the extent of the need for this sort of activity.

How well individuals can forecast as a group, as this group did, is really a matter for each reader to decide for himself, since there exist no standards short of perfection. In the author's opinion, the accuracy of this group's forecasting appears to have achieved a degree of predictability which, while not acceptable in the physical sciences, is certainly respectable in the social sciences.

## RADIO CORPORATION OF AMERICA



### Dividend Notice

The following dividends have been declared by the Board of Directors:

#### First Preferred Stock

87½ cents per share on the First Preferred Stock, for the period October 1, 1957 to December 31, 1957, payable January 2, 1958, to stockholders of record at the close of business December 9, 1957.

#### Common Stock

A quarterly dividend of 25 cents per share on the Common Stock, payable October 28, 1957, to stockholders of record at the close of business September 20, 1957.

ERNEST B. GORIN,  
Vice President and Treasurer  
New York, N. Y., September 6, 1957

Allied  
Chemical

#### DIVIDEND

Quarterly dividend No. 147 of \$.75 per share has been declared on the Common Stock payable December 10, 1957, to stockholders of record at the close of business November 15, 1957.

RICHARD F. HANSEN,  
Secretary

October 29, 1957  
ALLIED CHEMICAL & DYE  
CORPORATION

*Continuous Cash Dividends  
Have Been Paid Since  
Organization in 1920*

## BOSTON EDISON COMPANY

#### Preferred Dividend

A quarterly dividend of \$1.07 per share has been declared, payable on the first day of November 1957 to holders of record at the close of business on October 10, 1957 of the Company's Cumulative Preferred Stock, 4.25% Series.

#### Common Dividend No. 274

A quarterly dividend of 70 cents per share on the Common Stock of the Company has been declared, payable on the first day of November 1957 to stockholders of record at the close of business on October 10, 1957.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN  
Treasurer

Boston, September 23, 1957

## POWER PACES PROGRESS IN BRITISH COLUMBIA

To meet the increased needs of fast-expanding B.C. industry — B. C. Electric in the past decade has doubled its hydro-electric generating capacity — will again double it by 1960. In addition, the Company now distributes Natural Gas.

For further details about this energy development story, write:

**B.C. ELECTRIC COMPANY LIMITED**  
Public Information Department,  
970 Burrard Street,  
Vancouver 1, B. C.

**British Columbia Power Corporation, Limited**  
**British Columbia Electric Company Limited**

## Pacific Gas and Electric Company

#### DIVIDEND NOTICE COMMON STOCK

#### DIVIDEND NO. 167

The Board of Directors on September 11, 1957, declared a cash dividend for the third quarter of the year of 60 cents per share upon the Company's common capital stock. This dividend will be paid by check on October 15, 1957, to common stockholders of record at the close of business on September 23, 1957.

K. C. CHRISTENSEN,  
Treasurer  
San Francisco, Calif.

**P·G·and·E·**



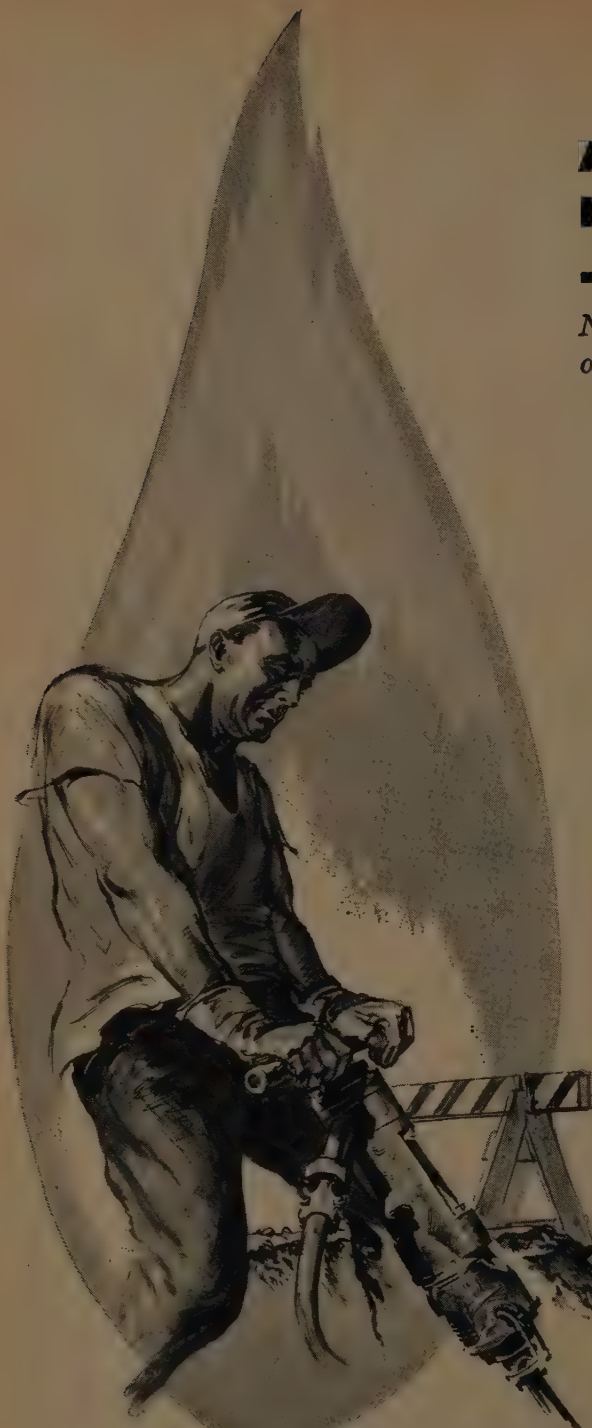
# ANOTHER HOUSEWARMING ... COMING UP!

*Natural gas heating is being installed in 95%  
of the new homes in America's Heartland!*

Year after year, homeowners in that part of America's Heartland served by Columbia Gas System continue to demand more and more natural gas. In 1956, Columbia's domestic users in Pennsylvania, Ohio, West Virginia, Kentucky, Virginia, Maryland, and southern New York, numbered 1,342,000 . . . an increase of more than 30% since 1947.

Natural gas is the *preferred* fuel in this area . . . not only for heating, but for cooking and water heating as well.

The task of supplying natural gas for these, and other uses, grows more costly and complex every day. But Columbia is continually increasing its facilities and services . . . as it must . . . so that there will be enough natural gas for all the housewarmings this year, and in the years to come.



COLUMBIA  
GAS  
SYSTEM

**THE COLUMBIA**

**SYSTEM, INC.**

COLUMBIA GAS SYSTEM SERVICE CORPORATION  
120 East 41st Street, New York 17, N. Y.

**CHARLESTON GROUP:** United Fuel Gas Company, Amere Gas Utilities Company, Atlantic Seaboard Corporation, Central Kentucky Natural Gas Company, Virginia Gas Distribution Corporation, Kentucky Gas Transmission Corporation. **COLUMBUS GROUP:** The Ohio Fuel Gas Company  
**PITTSBURGH GROUP:** The Manufacturers Light and Heat Company, Columbia Gas of New York, Inc., Cumberland and Allegheny Gas Company, Home Gas Company

# The Warrants or the Stock?\*

RUSSELL J. MORRISON

**A** GIVEN COMMITMENT in common stock purchase warrants is "working harder" for the speculator than in the corresponding common stock. Offsetting this advantage one finds a premium that must be paid for a warrant. The premium is the difference between the market price of a warrant plus the "exercising price" and the market price of a share. So the question of whether the premium may be too small or too large arises in a particular case. Is a commitment to the warrants preferable to a commitment to the corresponding stock? While there do not seem to be any clear-cut mathematically-based answers, this article presents two approaches. Each has advantages. They are complementary rather than competing.

## SEVERAL APPROACHES TO THE PROBLEM

The first approach takes explicit account of the fact that the premium must disappear by the date that the warrants expire. This cost of holding warrants (compared to the stock), plus the dividends foregone by holding warrants instead of stock, is offset by the return that one can impute to the funds released because warrants are always lower in price than the stock. The longer the life of the warrants, the larger is the permissible premium, other things the same.

The second approach recognizes that while the premium on warrants will ultimately be lost, this is offset by the fact that a larger number of warrants than shares can be commanded by a given commitment. If by the expiration date for the warrants the shares advance beyond a certain price ("break-even-price"), the loss of the premium on the warrants will be more than offset by the fact that a given commitment can command a larger number of warrants than shares. Thus, while the absolute dollar appreciation on a warrant will be smaller than on a share, the larger number of warrants commanded may more than make up for this.

It is important to note that the second approach is concerned not with the price at which the shares must sell at the expiration date of the warrants for the warrant holder to "break-even". This is simply the market price of a warrant plus the "exercising price". Rather, the "break-even price" referred to, above, is the price at which the shares must sell at the expiration date of the warrants so that an equal capital appreciation will be achieved on the commitment of a given sum to either shares or warrants at current market prices.

## AN EXAMPLE

Assume that shares are selling at \$6.00 and that warrants to buy the shares at \$3.00 for a period of 4-years are selling at \$4.00. Assume further that the anticipated annual dividend rate on a share over the next four years is 30 cents.

\*The reader can readily adapt this article to "puts", "calls" and "straddles".

Using the first approach, the purchase of a warrant at \$4.00 instead of a share at \$6.00, releases \$2.00 for up to 4 years. The costs that one must impute to this release of capital is the premium on the warrant which will be lost in 4 years (\$4.00 + \$3.00 - \$6.00) plus the \$1.20 in dividends that would have been received on a share in a 4-year period. These costs total \$2.20 over the 4 years. Expressed in terms of the funds released by buying a warrant instead of a share, the premium on a simple basis is 27.5% per year

$$\frac{\$2.20}{(4 \times \$2.00)}$$

The speculator, by holding a warrant, is imputing a return of 27.5% to funds employed elsewhere which were released by buying a warrant instead of a share.

While the above conclusion is expressed in terms of an average over the life of a warrant it is important to realize that the premium paid for a warrant will typically decrease at an accelerating rate, given the price of the shares. In the above example a warrant commitment planned for, say, two years or less, could be based on the assumption that the premium would reduce by something less than 27.5% per year.

For an illustration of the second approach, assume all of the basic data as above and assume further that \$1,200 can be committed to either stock or warrants. In this case it would be possible to hold either 200 shares or 300 warrants.

Without allowing for dividends on the stock, if the shares are priced at more than \$9 when the warrants expire, then the warrants will have proven to be preferable. If less than \$9, then 200 shares would show the greatest capital gain. This is illustrated in the following table:

Price of Shares on date Warrants Expire	Value of 200 Shares	Profit or Loss on 200 Shares	Value of 300 Warrants	Profit or Loss on 300 Warrants
\$ 1	\$ 200	\$ ---	\$ ---	- \$ 1,200
2	400	- 800	---	- 1,200
3	600	- 600	---	- 1,200
4	800	- 400	300	- 900
5	1,000	- 200	600	- 600
6	1,200	-	900	- 300
7	1,400	+ 200	1,200	---
8	1,600	+ 400	1,500	+ 300
9	1,800	+ 600	1,800	+ 600
10	2,000	+ 800	2,100	+ 900
11	2,200	+ 1,000	2,400	+ 1,200
12	2,400	+ 1,200	2,700	+ 1,500

After allowance for dividends that a holder anticipates on shares over a 4-year period (30 cents per year) the "break-even price" would be \$9.00 + \$1.20 or \$10.20

†The costs divided by four times (four years) the funds released.



The following formula is useful for the rapid calculation of the "break-even price":

$$A = \frac{W}{1 - X/Y} + Z$$

Where: A = "break-even price"  
W = exercising price of warrant  
X = current market price of a warrant  
Y = current market price of a share  
Z = total dividends anticipated on a share during the future life of a warrant.

Substitute the data of the example—

$$A = \frac{3.00}{1 - 4.00/6.00} + 1.20 = 10.20$$

Thus, in order for warrants to prove a superior vehicle for the employment of \$1,200 over their full 4-year life, the shares must appreciate from \$6.00 to over \$10.20, or by an average of 17 1/2% per year.

If the time horizon for the commitment is, say, a half-life or quarter-life of the warrants, the above conclusion must be modified as in the first illustration.

#### AN ACTUAL CASE

At the time of writing, October 10, 1957, Can-Met Explorations Limited, a Canadian uranium mining company, has recently commenced production. Prospectus estimates of potential profit are readily available. Ultimate operating costs, recoveries, and capital costs will differ from the prospectus estimates, but the amount of these differences can be gauged approximately since neighboring producers have now reported on their early experience. Essentially the same uncertainties and opportunities face Can-Met and its neighbors with regard to markets. All have contracts to sell U<sub>3</sub>O<sub>8</sub> concentrate to Eldorado Mining and Refining, a Crown Corporation. The market in Shares and Warrants is active.

Can-Met Shares are now selling at \$3.00 while Warrants sell at \$2.00. A Warrant entitles a holder to buy one Share at \$2.25 on or before December 31, 1960, at which time it expires.

The current premium on a Warrant is, therefore, the "exercising price" (\$2.25) plus the market price of a Warrant (\$2.00) less the market price of a Share (\$3.00), \$4.25 less \$3.00, or \$1.25. This premium will disappear by December 31, 1960. Over the whole period of 3 years and 3 months, the loss in premium of \$1.25 may be viewed as a cost of not committing an additional \$1.00 to buy a Share instead of a Warrant. Very expensive—almost 40% per year on a simple interest basis expressed in terms of the funds released.

#### AN IMPORTANT POINT TO NOTE

If a speculator believes that an appreciation to, say, \$6.00 is imminent for the Shares, then this doubling in the price of the Shares could well result in a move in the Warrants from \$2.00 to, say, \$4.00, or a doubling in the Warrants. It will be noticed that the premium has been reduced from \$1.25 to 25 cents which appears to be a reasonable assumption for such a rise. The important point to note in this

particular case is, that even for an imminent doubling in the price of the Shares, the Warrants, much more risky on the downside than the Shares, still can only be expected to enjoy the same percentage appreciation as Shares.

Using the second approach, suppose that a more or less permanent commitment with maximum leverage is planned. What is the minimum price that the Shares have to attain by the expiration date of the Warrants to provide at least as great a percentage capital gain as at that date? Applying our formula the answer is \$6.75—a 225% gain.

$$A = \frac{\$2.25}{1 - \frac{\$2.00}{\$3.00}} + 0 = \$6.75$$

And this is a minimum. The gain in the Shares has to be more than 225% at the expiration date of the Warrants (in 3 years and 3 months) for the Warrants to provide a greater dollar gain than Shares on a given commitment.

Clearly, each rational holder of Can-Met Warrants is anticipating at least either a doubling in the price of the Shares in a year or so, or a more than 225% appreciation by the date the Warrants expire. Less than this implies that a greater percentage capital gain would be realized on Shares. This argument, it is important to note, ignores the greater potential loss from holding Warrants at all times.

#### EXPLANATION

The writer is at a loss to "explain" the case cited above which has prevailed for at least a year. It is not especially extreme in the Canadian market at this time, though the spread in premiums on warrants from case to case is extremely wide. There is little doubt that a correction will ultimately occur.

We appear to be on a speculative binge in warrants. Unfortunately, most of what is written on warrants appears merely to entice would-be speculators into the field of warrants, as such. There seems to be little realization that warrants are at all times more vulnerable than the corresponding stock. We seem to have forgotten that the basic decision is with regard to the expectations for the stock, and that only after a decision to buy has been made should the question of whether to buy warrants or stock even come up. The professional is prevented from "correcting" (and profiting by) the present impasse because it is virtually impossible to borrow warrants for purposes of short-selling against long positions in the corresponding shares on any scale and for a substantial period.

While seemingly no statistical proof is on hand or logical reason to expect it, it may be that an apparent overvaluation in a warrant may, on average, presage a rise in the corresponding shares. This could be the subject of a statistical study which would not only lead to profit for the researcher but an ultimate improvement in the degree of market perfection.

This article, while it does not provide ready-made answers, is designed to assist in setting out for particular cases the future price implications of a commitment in either a stock or its corresponding warrant. Given price expectations, an approach to a rational decision can be reached quickly in any particular case using the above techniques.

# Man-made diamonds by the pound open new paths for industry

**A report on a promising area in research and development activity at General Electric, by Dr. Guy Suits, Vice President and Director of Research**

In 1955, the General Electric Research Laboratory announced the development of man-made diamonds, as one result of the Laboratory's continuing research in high-temperature and high-pressure phenomena. Today, the Company's Metallurgical Products Department is producing these diamonds in quantity for industrial use, and is supplying them to customers.

Estimates are that, with this important new source of supply, promising new applications could greatly increase the market in industrial diamonds in the next decade.

Thus, the combination of outstanding scientific talent, engineering and manufacturing skill, and enterprising business management has translated a research achievement into a new growth business for General Electric in a little over two years.

The General Electric share owner has recognized that research forms a basic element of competition in today's economy, and has supported sound research and development programs as a major source of his Company's growth. Scientific and technological discoveries from General Electric's laboratories not only advance the Company's competitive strength in existing markets, but also provide new materials, products, and processes for new business opportunities and increased sources of profit.

At present, investigations are being carried forward in General Electric's laboratories that will enhance our mode of living in ways that cannot now be adequately described or even foreseen. A few of the more significant projects are: peaceful utilization of



**Made in U.S.A.** Industrial diamonds produced at a General Electric pilot plant in Detroit will be used in critical cutting and grinding operations. For the first time, the United States will not have to rely entirely upon a closely controlled foreign supply.

the fusion process, creating new plastics strong enough for structural use, and developing tiny electronic devices that will find uses in the home, as well as in industry.

As in the past, we expect to continue this high level of research and devel-

opment activity, for it helps accelerate progress for General Electric's customers, share owners, employees, suppliers, and dealers, and for the nation as a whole.

*Guy Suits*  
VICE PRESIDENT

**DR. GUY SUITS** has spent 27 years as a General Electric scientist. He himself has made many basic research advances in electric circuits, electronics, and high-temperature arcs, and holds more than 70 patents. Dr. Suits' address at the recent President's Conference on Research for the Benefit of Small Business contains more information on research and development at General Electric. For your copy, write: Department 2-119, General Electric, Schenectady, New York.



*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**





### DOMESTIC PLANTS AND DIVISIONS

FRIT & GLAZE DIVISION  
Cleveland - Nashville  
Los Angeles  
*Frits and Glazes*

COLOR DIVISION  
Cleveland  
*Inorganic Colorants*

FERRO ENGINEERING DIV.\*  
Cleveland  
*Porcelain Enameling Furnaces, Plants*

AGRICULTURAL FRIT DIV.  
Cleveland  
*"FTE", Other Specialties*

ALLIED ENGINEERING DIV.\*  
Cleveland  
*Ceramic Kilns, Dryers*

CERAMIC SUPPLY CO.  
Crooksville, Ohio  
*Saggers & Refractory Specialties*

FIBER GLASS DIVISION  
Nashville  
Huntington Beach, Calif.  
*Fiber Glass Reinforcements for Plastics*

FERRO INTERNATIONAL DIV.  
Cleveland  
*Export of Ferro Domestic Products*

### DOMESTIC SUBSIDIARIES

FERRO CHEMICAL CORP.  
Bedford, Ohio  
*Plastic Stabilizers,  
Metallic Soaps, Driers*

TUTTLE & KIFT, INC.  
Chicago, Ill.  
*Electrical Heating Units  
and Switches for Household  
Appliances and Specialties*

THE LOUTHAN MFG., CO.  
East Liverpool, Ohio  
*Refractory Specialties for  
Ceramic, Electrical, Electronics  
and Foundry Fields*

FERRO POWDERED  
METALS, DIV.  
The Louthan Mfg. Company  
Salem, Indiana  
*Powdered Metal Parts*

THE PATTERSON FOUNDRY  
& MACHINE CO.  
East Liverpool, Ohio  
*Process Equipment for the Chemical,  
Food and Plastics Industries*

AMERICAN CLAY FORMING  
COMPANY  
Tyler, Texas  
*Refractory Specialties for  
Southern and West Coast Markets*

### FOREIGN SUBSIDIARIES AND AFFILIATES

FERRO ENAMELS  
(Australia) PTY. LTD.  
Australia

FERRO ENAMEL S. A.  
Argentina

FERRO ENAMEL S. A.  
Brazil

FERRO ENAMELS (Can.) LTD.  
Canada

FERRO ENAMELS LTD.  
England

FERRO ENAMELS  
(Holland) N. V.  
Holland

FERRO ENAMEL  
DE MEXICO, S. A.  
Mexico

FERRO ENAMELS (Prop.) LTD.  
South Africa

THE PATTERSON FOUNDRY  
& MACHINE CO. (Can.) LTD.  
Canada

### AFFILIATES

FERRO ENAMEL DE  
CHILE LTDA.  
Chile

PROCEDES FERRO  
France

FERRO ENAMELS (Japan) LTD.  
Japan

\*Engineering and Sales Offices Only

# FERRO CORPORATION

HEADQUARTERS

4150 East 56th Street

CLEVELAND 5, OHIO

# Investment in Canadian Development Stocks

STEPHEN A. JARISLOWSKY

**M**OST PEOPLE LIKE to gamble. Canadian development stocks, usually in the raw materials end of the stock market, provide such a possibility. Most of these stocks are "mining" or "petroleum" issues, which fields have always attracted the get-rich-quick devotee.

The bulk of these stocks do not have a remote possibility of ever becoming successful. Nor is this in many instances the intention on the part of the promoters. These operations resemble the chain letter, in that it is usually the one who originates the promotion who gains while the later contributors do not do so well. Still these operations, however shady, persist for hope springs eternal. One usually hears about the odd profit. Those who lost heavily normally do not talk much, for few of us are willing to admit our stupidities. The fact is that considerable sums of money are lost yearly by the public on stocks which analysis would have easily shown had little to no chance of success.

On the other hand there are mining and petroleum stocks of the junior variety which in time may pay off handsomely. To find these there are a number of benchmarks that must be followed by the analyst. These rules are quite clear-cut. It is therefore strange that the field has not to date attracted the serious analyst. There are a number of reasons for this. The odds are very steep in either direction. Often a maximum gain of some 500% may be balanced off by the spectre of a total loss. The investor who gained by the analyst's advice will normally credit his own foresight, while the total loss is inevitably blamed on the man who said that the stock was good. Also not all accounts can afford the risks involved. Then there is the factor of supply of stock. Very little public stock exists during the early stages of these ventures. Stock must be accumulated very slowly and even then the total dollar sum invested remains small in terms of institutional or large account buying. Furthermore, the analyst must retain a very active interest in the affairs of the company during the years of organization and development and this is very time consuming.

There is no doubt that the analyst of development stocks must know the mining and oil industries. A familiarity of basic geology is a requisite. There is also a great risk in any new venture. Very much depends on the organization that can be built. Without a sound organization, success is the exception rather than the rule. Moreover, it takes huge sums of money today to prove up a mine and even larger ones to bring it into production. Going into the petroleum business on a shoestring usually also stands little to no chance of success. The investor eventually is not satisfied with earnings sufficient to pay management and the operation must be conceived such that in time large dividends become available to shareholders.

This article is concerned with some of the techniques required to find development stocks which in time should become investment issues. The discussion has been confined to Canadian mining.

The back of mining stock manuals is filled with the names of dormant, defunct, and forgotten companies. They are the failures. Their number is more than a hundredfold greater than that of the successful ventures. Moreover, the word "success" is questionable in many instances. Many mines sell well below the prices paid during the early days of discovery promotion. Yet in many instances the original purpose of the promoters has been achieved. They mined the public's purse and this was their major reason for being. The promoter of many a Canadian "mine" has in fact very little intention of finding a real mine and when he does he is just as surprised as the public. When a promoter finds a mine he is in fact confronted with being in a different business than he thought he was in. He must change his thinking from watching and influencing a quotation on a ticker tape to that of spending many years of hard work building a mine and an organization. He must all of a sudden change his thinking of "pushing a stock" to that of being a mine builder and administrator. Very few of the mining promoters have built major mines themselves. Usually, in time they have chosen to sell off sufficient stock to serious groups who then embarked on the task.

The promoter's interest is primarily that of selling treasury shares to the public, usually with himself as intermediary with large options granted to himself. Part of the proceeds ends up in the company's treasury but, over a period, a good deal ends up in the promoter's pocket, whether the mine is a success or a failure. This procedure has been outlined sufficiently often not to require restating. The promoter uses methods proven in any form of retail selling. Newspaper advertisement, direct mail and phone calls coupled with rumors are the means employed.

For the serious analyst here is an immediate guidepost. If the property was a proven one or even only potentially rich, clearly the promoter would wish to keep the shares. The fact that he is willing to part with the shares means that his chances of making money, to his mind, are greater in selling than in holding. Therefore these shares should be avoided.

Very rapidly the analyst gains a knowledge of "who is who" in promotion. The case histories of the different promoters become common knowledge to him and he can after a while determine who will give him "an honest run for his money." Usually it is a good rule to completely avoid the promotions of men with shady reputations.

There are some notable exceptions. At times a promoter, whatever his reputation, has found something valuable. Usually he knows it. He may need money but will not want to lose control. At other times, he may wish to hedge his bet by raising money for drilling from the public. These instances must be very carefully investigated. Normally after a little research it is apparent that management is greedy and in time will, whatever the outcome of drilling, dilute the public's holdings. In other words, a public offer-



ing must be so good that the chances of gain far outweigh the risk of loss. This pre-supposes that these risks can be measured, and this is the basic prerequisite in buying development stocks. The analyst should be able to clearly visualize the chances of gain and loss.

We have already touched on the question of integrity of management. Is the company essentially honest and shareholder conscious? To my mind the answer can only be "yes" if the management's aim is to build a profitable producing mine which in time will pay more dividends on the shares than the stock is currently selling for. The management must wish to treat all shareholders alike whenever feasible. A question which is closely allied to the question of honesty is that of intelligence and know-how. Clearly an honest fool does not build a mine, whatever his intentions. Mine building is professional hard work. The way to obtain answers to these questions is first to go and speak to management. This must be supplemented by a study of the record of the various key people. Anyone in the industry with a proven reputation should be able to supply satisfactory answers. Specialists in Canadian development stocks often hold very firm views. This question of integrity and will to build a mine is paramount.

There are several examples that may be cited. Company A in the Chibougamau area went about its business quietly. A good geologist was retained and sound mining men were invited to join the Board. The initial drilling that led to a major strike was financed by this founding group. A small group of insiders, including the founders then subscribed for sufficient shares to pay for the major program of proving up the orebody. The stock, which had been listed under the name of a predecessor company for many years, sold all during this period at very reasonable prices. There was no stock promotion whatsoever during these early years of mine building. The inside group and their friends continued to accumulate whatever public stock was offered. In time as the supply of stock dwindled and the earnings potential became readily apparent, the stock went up very rapidly to some ten times the early valuations. In time when metal prices fell, the shares suffered a sharp correction, but settled at about 4 times the price that ruled during the mine building period. Company B in the same area at an early stage negotiated a lease arrangement which guaranteed them a handsome profit. The revenue from this arrangement normally would have sufficed to permit a broad program of intensive exploration of the unleased parts of the property. There was no need to issue new shares for such a program and dilution should only have been necessary once a major orebody had been uncovered. At such a time, undoubtedly a very good price for the stock might have been obtainable. Nevertheless, in spite of this logic, the promoters decided to "push" the stock. They issued large options to themselves at very low prices and in time without apparent reason the number of outstanding shares was doubled in this manner. The promoters reaped a huge profit on their stockmarket machinations. Exploration for ore remained neglected. The flow of income from the lease arrangement materialized as expected. Then in order to "push" the stock yet higher, management decided on a mill, although only three years of ore had been proven. The size

of the mill is marginal in any but times of boom prices for the metal. The ore reserves indicated are relatively low grade and the insufficiency of exploration makes it a nice question whether the shaft and mill are actually in the right location, even should they prove justified in due time by ore discoveries. The metal market collapsed at the time the mill was announced, and the operation may not make a profit on its own milling for many years. Meanwhile the funds have been spent on a dubious venture.

The above two examples illustrate the importance of integrity and know-how. The first example contains many of the symptoms an analyst looks for in discovering a new major development stock. Example B is a sorry example of something which might have become a mine, but where for the time being economics and the public shareholder have to take an expensive back seat. On the other hand as far as the sponsors are concerned, it has permitted them to become millionaires. During the height of the speculative market, the property was valued in excess of \$20 million.

Honesty, connections and know-how alone do not discover a mine. The record is filled with honest tries as well as with dishonest ones. Generally speaking the exploration effort of the big mining companies till recently has been pitifully inadequate. There are some major exceptions to this rule. It takes a great deal of work to prove up a mine, and it also takes a good measure of luck. Till all factors fall into place, no one knows whether you in fact will have an operating mine. The problem for the analyst is therefore to determine the stage of development at which money should be invested. Let us look at the stages of mine building and see how able management might go about its business.

First of all one organizes a mining syndicate. Little money is required and undoubtedly the sponsors should put up these funds. The objective is to stake likely claims and do some surface work. The sum required may be \$50,000. No public money should be solicited at this stage.

Assuming that the initial work leads to promising discoveries. Such encouraging showings must be extensively diamond drilled. Some of this work probably can still be done within the scope of the original \$50,000. Should the money not suffice, the syndicate may be expanded. Again there should be no need for participation on the part of the public.

If this major drilling effort proves highly successful, the stage is set for major financing required to carry out shaft sinking and delineation of the ore body. We are still operating at a high risk stage, since failure to prove an economic mining proposition in depth would mean almost complete loss. If favorable development of this stage is an almost foregone conclusion, the chance is that a wealthy syndicate will provide the further funds required. Sometimes a strong partner, preferably a mining firm, is brought in at this juncture. If chances are no more than good, public participation may be solicited to share in the risk of this phase of mine building. Unless the vendor, however, considerably underestimates the value of the property, the public normally does not receive a bargain. However, frequently even insiders make mistakes and those who are all day long concerned with the problems usually do not see the bright sides as vividly as someone impartially concern-

ing himself with the long-term future. Should the drilling results be mediocre, yet warrant further work, I consider it justified for the syndicate to invite the public to share in any further risk. The risk to the public, while considerable, is considerably less than that which was initially taken by the syndicate, provided of course that the public will be treated fairly. Admittedly the chances are somewhat less, but they can still be very good should success crown the venture. The security analyst, however, must still remain on the sidelines. The shares represent a prospect, not a development stock. Gambling is not the stock in trade of an analyst.

There are instances when a prospect is in fact a calculated risk. Claims may be located such that the chance of missing is very slight. Neighboring orebodies may be known to run into the property. This happens especially in new mining areas where ore tends to be distributed uniformly. A number of properties in the Blind River uranium area provided a case of this kind.

The analysts first real opportunity comes once commercial ore has been discovered in quantities sufficient to make eventual mining more than profitable. Still many hazards remain. Many kinds of base metal ores in Canada normally are only proven upon very large expenditures running into millions of dollars. Canadian deposits tend to be highly irregular and therefore require extensive drilling. This is in contrast to Rhodesian copper deposits where relatively few drill holes prove large orebodies. Such matters as raising money to build a mill and develop underground workings on an equity basis—since metal prices usually preclude the risk inherent in debt—and finding good management are generally problems beyond the scope of the original syndicate. Bidding by large established mining groups is such that honest management can realize important profits for the shareholders.

It is during the period between mill financing and start of operations that the analyst has his real chance. This period covers at least one year and more often two or three. Considerable factual information is available at this stage. Also stock prices are generally reasonable. The promoters and speculative public sell their shares in a rather drab market and the strong hands wait for attractive prices based on value. Investors are normally reluctant, since the stocks pay no dividends and may not do so for many years. Values can be calculated and in time should fully assert themselves.

Contact with mining management at this stage is a must. The analyst will want to determine ore reserves, the average grade of ore, mining and milling costs, transportation expense and overhead charges. The chances of additional discoveries and the general policy that will be pursued in the future also should be studied.

The break-down of costs can be compiled into a standard pattern. What the analyst wants to know is the per ton of ore or pound of metal cash costs for such items as mining, milling, smelting, transportation, administration and selling and other operating expenses. Then based on different price assumptions a cash operating profit may be calculated. Depreciation and amortization charges, interest and taxes may be deducted from this item to arrive at a net profit. The items of cost depend to some extent on the size of

operation. A comparison of ore reserves and life expectancy of the ore based on different sizes of mills should give an indication of what mill size may be in due time prove optimum for a particular mine. Very often investors sell mining stocks too early without anticipating that in due time the mill can and will be materially expanded. Another factor to watch in ascertaining costs are the metallurgical problems of the ore and the degree of recovery of the contained metals.

Policies of mine companies differ. There are two chief types. In the first the mine will remain a single entity, although the mill may be successively expanded over a period of time. This type of mine tends to become an early dividend payer. The second mine in time becomes a mining empire. The revenue of the operating mine are used to finance other orebodies to production. The latter mine in fact becomes a holding company. Dividends are deferred in favor of mine building.

Aside from the aspects outlined above, development stock analysts should be acquainted with the different types of mining, such as copper, gold, silver, nickel-copper, lead-zinc, zinc-copper, iron ore, uranium, asbestos, etc. Each of these industries has problems which differ from the other metals.

The asbestos industry is a very tightly controlled one. The newcomer is the exception rather than the rule. Asbestos comes in a multitude of different grades and each has special applications. Grades vary considerably in price. A new mine must convince prospective customers that they can use the particular grade. Grades vary from mine to mine. A new company must be accepted in the industry, since otherwise a customer may not be able to assure his supply from the old sources.

Copper experiences very sharp price variations. Cost of production is a vital statistic, since in times of oversupply the price tends to fall to a point where high-cost mines are forced to close. What was ore at higher prices turns into rock. Calculations must be based on a range of metal prices and conclusions should be based on an average price rather than on the excesses which are typical of this industry.

The same general statement which applies to copper also covers lead and zinc. These latter two metals enjoy but very slow growth. Lead is somewhat rarer than zinc, which is a drug on the market. Price fluctuations tend to be but slightly more moderate than for copper, and again supply is only reduced by price cutting to the point where the high-cost mine will close.

Uranium today depends on the ability to obtain government contracts or of finding ore of such richness that no contract is required. No new contracts, other than those announced, will be granted in Canada till 1962. Evaluation of existing mines in good part depends on what will happen upon contract expiration in 1962. This area is uncertain at this date. Conservative analysts will establish values almost entirely on the basis of the contracts.

Iron ore is another industry which is of vital interest to analysts in Canada. Here again we deal with a relatively tightly controlled industry. Much depends on whether a mine has the right sponsorship or marketing agreements. Also deposits must be huge to warrant exploitation and this



requires extremely large sums of money which exist in but few hands. Buying shares of unfinanced proven deposits entails a major risk, even though a property may be perfectly sound commercially.

Nickel also is dominated by a very few companies. The nickel price is a steady producer price set by the giant of the industry, The International Nickel Company of Canada. However, nickel ores generally contain considerable quantities of copper ores which follow the rules of copper discussed earlier. Newcomers have been few in this industry. Special contracts and premium prices have led to the emergence of Falconbridge Nickel Mines as an important producer in Canada. Sherritt Gordon Mines is another firm that has grown into prominence during the last decade.

Premium prices are now melting away and current expansion programs of the major producers indicate that nickel will be in plentiful supply by the end of 1960.

Gold and silver mines are currently out of fashion. As long as the gold price remains pegged and costs of gold mines rise there is little incentive to look for the yellow metal. Such minerals as lithium, tantalum, columbium, titanium, etc. pose difficult problems since uses are either in the infant stage or, because metallurgical problems are still awaiting solutions.

In conclusion there is no doubt that the chances of making money in new mines are considerable. The analyst has a lucrative field from which he can profit, if he uses sound tools.

## National Distillers and Chemical Corporation



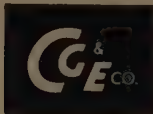
### DIVIDEND NOTICE

The Board of Directors has declared a quarterly dividend of 25¢ per share on the outstanding Common Stock, payable on December 2, 1957, to stockholders of record on November 12, 1957. The transfer books will not close.

PAUL C. JAMESON

October 24, 1957. Treasurer

## THE CINCINNATI GAS & ELECTRIC COMPANY

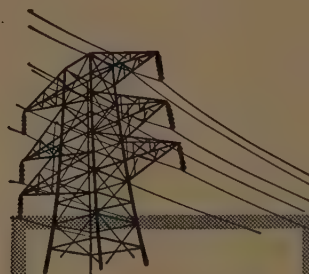


Over 104 years of uninterrupted cash dividends on common stock

The

Board of Directors has declared a quarterly dividend of 37½ cents per share payable November 15, 1957, to shareholders of record October 15, 1957.

WALTER E. BECKJORD, SECRETARY



## Southern California Edison Company

### DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

CUMULATIVE PREFERRED STOCK,  
4.08% SERIES  
Dividend No. 31  
25½ cents per share;

CUMULATIVE PREFERRED STOCK,  
4.24% SERIES  
Dividend No. 8  
26½ cents per share;

CUMULATIVE PREFERRED STOCK,  
4.88% SERIES  
Dividend No. 40  
30½ cents per share.

The above dividends are payable November 30, 1957, to stockholders of record November 5. Checks will be mailed from the Company's office in Los Angeles, November 29.

P. C. HALE, Treasurer

October 18, 1957



## SOUTHERN NATURAL GAS COMPANY

Birmingham, Alabama

### Common Stock Dividend No. 75

A regular quarterly dividend of 50 cents per share has been declared on the Common Stock of Southern Natural Gas Company, payable December 13, 1957 to stockholders of record at the close of business on November 29, 1957.

H. D. McHENRY,  
Vice President and Secretary.

Dated: October 19, 1957.

## AMERICAN ENCAUSTIC TILING COMPANY, INC.

Manufacturers of Ceramic  
Wall and Floor Tile

### COMMON STOCK DIVIDENDS

Declared October 16, 1957  
Quarterly—15¢ per share  
Extra—10¢ per share  
Payable November 29, 1957  
Record Date November 15, 1957  
4% Stock Dividend  
Payable December 16, 1957

# Cyanamid Means ...

## *Better Petroleum*



## *Better Leather*



## *Better Surface Coatings*



■ In addition, the results of Cyanamid research and chemical application are being felt in the improvement of Metals ... Food ... Paper ... Rubber ... Agricultural Chemicals ... Textiles ... Plastics ... Explosives ... Drugs and Pharmaceuticals. For further information, call or write AMERICAN CYANAMID COMPANY, 30 Rockefeller Plaza, New York 20, N. Y.

**CYANAMID**

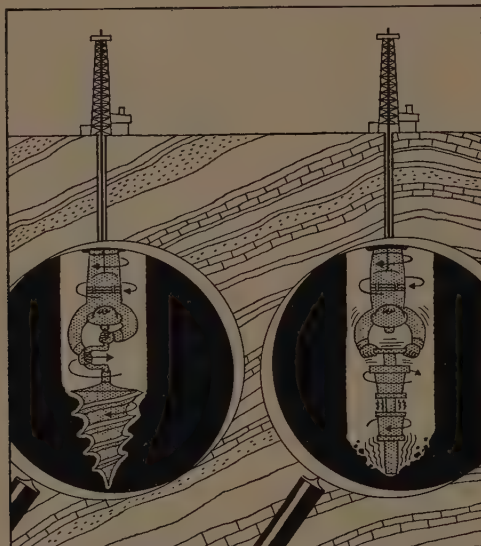
HELPING AMERICA MAKE BETTER USE OF ITS RESOURCES





# Now you can do this two miles down!

*Percussion hammer developed by Gulf  
drills up to four times faster!*



The common method of drilling is shown at left with Gulf's new hammer drill at right. It is expected that drilling speed will be increased up to 4 times when the new method is put into use.

The problems encountered in the search for oil are many and various and one of the most frustrating is this: *How can you drill straight down and fast?*

Now, since you can't send a man down with a percussion drill, what's the next best thing? To send the drill down, of course. And Gulf scientists, at the Research Center in Harmarville, Pa., have devised a way to do just that. It took a long, long time . . . but they did it.

**First**, they developed the drill itself. It consists of a reciprocating piston and cylinder arrangement for delivering percussion blows against friable (or brittle) rock encountered in tough formations.

The device is encased in a cylinder about 19 feet long which hangs at the end of the drill string, with a conventional roller bit fastened directly below. As



the drilling mud circulates through the mechanism, it drives a 200-pound hammer, delivering 600 or more strokes a minute, on the attached bit.

**Result:** Drilling speeds may double or *quadruple* in the hardest oil field formations. Not only that, but straight-line drilling is now possible since the bit will no longer veer off slanting rock formations. This solves the costly problem of the crooked hole.

So, here it is. A tool designed specifically for hard-rock drilling, which is expected to provide savings in money, time, and maintenance. The new drill is about ready for release and arrangements are now under way to make it available to the industry.

**One more step in petroleum progress**—one more scientific advance with an ultimate public benefit. This is, indeed, the industry that looks to the future.

Gulf Oil Corporation,



General Offices, Pittsburgh, Pa.

# Stock Is Worth What You Can Get Out of It

## A Method of Comparative Evaluation

ADOLPH E. GRUNEWALD

THE INVESTOR, desirous of committing funds to the stock market is confronted with two fundamental problems; when to buy and what to buy.

Solutions to these problems have been sought in three approaches. They are the "security analysis" method, the "market analysis" method, and the "formula timing" method. The first two are based on similar assumptions; that the investor, by intelligent analysis and thoughtful consideration can select the right stocks and the right time to buy and sell. The desired objective is the selection of the securities containing, in the light of the investor's investment aims and objectives, the ideal combination of market price appreciation, dividend income and safety of commitment. The third, or formula-timing method requires the investor to buy or sell according to mechanically ascertained signals based on a predetermined rule. These plans indicate when securities are to be bought and sold and also point to the type of security, bonds or stocks, but do not assist the investor in the selection of specific issues.

All three are worthy of the thoughtful investor's consideration and each contains its peculiar shortcomings and pitfalls which await the tread of the unwary. One defect, however, they have in common. None contains a mechanism or a method whereby the attractiveness of one issue may be directly compared with that of another. What is needed is a means for comparing a number of stocks in terms of market-price appreciation prospects and dividend income prospects in relation to the degree of confidence with which this flow of "income" may be anticipated and to the market price of the issue. The existence of such a method would enable the investor to select for purchase (for sale) the stock containing the most favorable (least favorable) "bundle of value" consistent with his investment aims and desires. The objective of this article is to present such a method of comparative evaluation.

The proposed method of comparative evaluation is based on two propositions: (a) the value of a stock to an investor rests upon and is a reflection of the amount he can get out of the investment, and (b) the stock to buy is the one which will produce the maximum market price appreciation and dividend income over the shortest period of time with the least amount of risk for that kind of commitment; the operation being consistent with the degree of risk the investor is willing to assume in reaching for investment return.

The utilization of this method will enable the investor to select from a number of stocks those which, at current market prices, contain the most attractive combination of the five basic factors important to investors. They are: (a) the estimate of dividend income; (b) the degree of confidence with which the estimated flow of dividend income

may be anticipated; (c) the estimate of market price appreciation over a given period of time; (d) the degree of confidence which may be placed in the estimate of future market price appreciation; and (e) the relative importance of capital gains vis-a-vis dividend income.

### METHOD

The determination and evaluation of these five factors comprise the method suggested in these pages for comparing the relative attractiveness of two or more stocks. They are expressed in the following formula:

$$VI = \frac{(D \times A_1) + W \left( \frac{CG \times A_2}{Y} \right)}{MP}$$

"VI" refers to the value index of the stock. It is the measure of the attractiveness of the shares relative to other shares appraised according to the same method of evaluation.

"D" refers to the average annual dividend anticipated over a reasonable period of time; " $A_1$ " to the degree of reliability with which future dividends may be estimated and the assurance with which the estimated future dividends may be anticipated. The greater the degree of confidence which may be placed in the dividend-income estimate, the larger the justifiable assurance factor. Absolute assurance that the projected dividend income will be received would dictate an assurance factor of one hundred. Conversely, complete lack of confidence that the estimated dividend income will be forthcoming requires an assurance factor of zero. The appropriate assurance factor will generally fall somewhere between the extremes of the range zero to one hundred.

It will vary with the quality of the shares being appraised and the optimism or pessimism with which future dividend income is estimated. The better the quality of the shares the greater the reliability with which future dividend income may be estimated. Likewise, the more conservative the estimate of dividend income, the higher the degree of confidence with which it may be anticipated. Both tend to justify a liberal dividend-income assurance factor. On the other hand, the more speculative the issue, the less the reliability with which future dividend income may be estimated and the more optimistic the estimate of dividend income, the less the confidence with which it may be anticipated. These circumstances dictate a lower dividend-income assurance factor.

"CG" refers to the estimate of market price appreciation which it is anticipated will occur over a given period of time; "Y" the number of years for which the estimate of



market price appreciation is being made; and "A<sub>2</sub>" the degree of reliability with which the future market price appreciation of the shares may be estimated and the assurance with which it may be anticipated. The greater the degree of confidence which may be placed in the market-price appreciation estimate, the larger the justifiable assurance factor. Absolute assurance the market price will rise as estimated would dictate an assurance factor of one hundred. Conversely, complete lack of confidence the estimated market price appreciation will occur dictates an assurance factor of zero. Generally, the appropriate market-price appreciation assurance factor will fall some where between the extremes of the range zero to one hundred.

An investor, for tax or other reasons, may prefer to receive income in the form of capital gains rather than cash dividend payments. The factor "W" provides the means for giving expression to this predilection. It permits the weighting of anticipated market price appreciation "income" more heavily than anticipated dividend income. If, for example, the investor feels income in the form of capital gain is twice as valuable to him as income in the form of dividends, he can through the use of factor "W" weight the former twice as heavily as the latter.

"MP" refers to the current market price of the shares.

The figure resulting from the mathematical manipulation of the quantities inserted in the formula has been termed the "Value Index." It has no intrinsic significance of its own. It assumes meaning when compared to the "Value Indexes" of other stocks subjected to the same method of analysis. Of such a group of stocks, the one possessing the highest "Value Index" will be the one containing for that investor the most attractive "bundle of value", i.e., the stock, which at prevailing market prices, possesses the most attractive combination of market price appreciation potential, anticipated dividend income and safety of commitment. This, then is the stock to be purchased.

#### ILLUSTRATION

The application of the proposed method of comparative evaluation will now be illustrated. For this purpose, the stocks of four companies in the ethical drug field have been selected. They are: Abbott Laboratories; Merck; Parke, Davis; and Pfizer (Charles).

Assume the prospects of the ethical drug industry as a whole and those of the above companies in particular are relatively attractive. Assume further an individual interested in the purchase of the shares of one of the companies. The question he is confronted with is: At prevailing market prices, which of the shares would be the better "buy"? In order for this question to be answered adequately consideration must be given to future dividend income, future market price appreciation, the reliability with which each may be estimated and the relative importance of capital gain vs. dividend income.

The Value Indexes of the four stocks are based on the estimated performance of the companies over the next three years. Dividend figures are estimated average dividends per share to be paid annually over this period of time. The estimated market price appreciation is anticipated

to materialize over this three year period. Also, it was assumed that income in the form of capital gain was twice as valuable to the shareholder as income in the form of dividends.

For the four ethical drug company stocks, the Value Indexes might work out as follows:

$$VI = \frac{(D \times A_1) + W \frac{(CG \times A_2)}{Y}}{MP}$$

#### Abbott Laboratories

$$VI = \frac{(2.10 \times 40) + 2 \frac{(12 \times 40)}{3}}{44}$$

$$VI = 9.1$$

#### Merck

$$VI = \frac{(1.30 \times 60) + 2 \frac{(7 \times 60)}{3}}{34}$$

$$VI = 10.5$$

#### Parke, Davis

$$VI = \frac{(2.30 \times 60) + 2 \frac{(9 \times 70)}{3}}{53}$$

$$VI = 10.4$$

#### Pfizer (Charles)

$$VI = \frac{(2.40 \times 60) + 2 \frac{(12 \times 80)}{3}}{55}$$

$$VI = 14.3$$

On the basis of these calculations, which are based on a number of estimates, it would appear Pfizer (Charles) is the better buy at the current market prices. This conclusion is arrived at not alone in terms of projected market price appreciation, or discounted dividend income, but in con-

sideration of the reliability with which future dividend income and market price appreciation may be estimated and the percentage relationship which this combined future flow of income bears to current market price. Overall rate of return and reliability with which this return may be anticipated are at least of equal importance to the estimate of future income flow to be received from ownership of the shares. This method for comparing the relative attractiveness of two or more stocks was formulated for the express purpose of giving recognition and weight to these two important considerations.

#### CONCLUSION

There is nothing magic or fool proof about this method. Everything depends upon the estimates of the appraiser. The estimates of future performance must be reasonably accurate and also the estimates of the degree of reliability

which may be placed in the projections if favorable results are to be anticipated. If these estimates are relatively correct, this method of comparative evaluation will then lead the investor to select those stocks which contain, in the light of his investment aims and objectives, the most attractive "bundle of value."

It should be noted that this method of comparative evaluation is independent of any particular approach to investment or speculation. The appraiser is not bound to "security analysis," or "market analysis" or "formula timing." He may continue to follow those techniques of forecasting he has found successful in the past. The functioning of this method is entirely dependent upon the component factors; not how they are determined. If the factors are haphazardly determined, the results can be no better. If they are accurately determined, the results achieved will be favorable.

### AIR REDUCTION

Company Incorporated



162<sup>nd</sup> CONSECUTIVE

#### COMMON STOCK DIVIDEND

The Board of Directors has declared a regular quarterly dividend of 62½¢ per share on the Common Stock of the Company, payable on December 5, 1957 to holders of record on November 18, 1957, and the twenty-fourth regular quarterly dividend of \$1.125 per share on the 4.50% Cumulative Preferred Stock, 1951 Series, of the Company, payable on December 5, 1957 to holders of record on November 18, 1957.

October 23, 1957

T. S. O'BRIEN, Secretary

#### Dividend No. 53

Interlake Iron Corporation has declared a dividend of 35 cents per share on its common stock payable Sept. 30, 1957, to stockholders of record at the close of business Sept. 13, 1957.



*J. P. Dugan*  
Exec. Vice Pres. & Treas.

### Interlake Iron

CORPORATION  
CLEVELAND, OHIO

Plants: Beverly, Chicago, Duluth, Erie, Jackson, Toledo

### MINNEAPOLIS GAS COMPANY

739 Marquette Avenue  
Minneapolis 2, Minnesota

#### Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on October 18, 1957, declared a dividend of 35 cents per share payable in cash on November 9, 1957, to common stockholders of record as of the close of business October 29, 1957.

G. T. MULLIN, President

### AMPHENOL

#### AMPHENOL ELECTRONICS CORPORATION

"At a meeting of the Board of Directors of Amphenol Electronics Corporation held today a quarterly dividend of thirty cents per share was declared, payable October 25, 1957, to the shareholders of record at the close of business October 11, 1957. The transfer books will not be closed.

Dated at Chicago Sept. 24, 1957

FRED G. PACE  
Secretary



#### COMMON STOCK DIVIDEND

The Board of Directors of Central and South West Corporation at its meeting held on October 17, 1957, declared a regular quarterly dividend of forty cents (40¢) per share on the Corporation's Common Stock. This dividend is payable November 29, 1957, to stockholders of record October 31, 1957.

LEROY J. SCHEUERMAN  
Secretary

#### CENTRAL AND SOUTH WEST CORPORATION

Wilmington, Delaware

### Harbison-Walker Refractories Company

Board of Directors has declared for quarter ending December 31, 1957, DIVIDEND OF ONE AND ONE-HALF (1½%) PER CENT or \$1.50 per share on PREFERRED STOCK, payable January 20, 1958, to shareholders of record January 6, 1958.

Also declared a DIVIDEND of \$.45 per share on COMMON STOCK, payable December 2, 1957, to shareholders of record November 12, 1957.

G. F. Cronmiller, Jr.  
Vice President and Secretary  
Pittsburgh, October 31, 1957.



# ENERGY

## *makes the* WEST GROW

The all-round growth of the nine Western States served by El Paso Natural Gas Company and its subsidiaries continues to accelerate, consuming energy at an unprecedented rate.

New growth calls for new energy—energy to make arid lands fertile . . . energy to make rigorous climates pleasant with air-conditioned homes and offices for year-round living and working comfort . . . energy to increase production in plants, in mines, in fields.

Since 1928, when El Paso Natural Gas Company was formed, population in these nine states has almost *doubled*. Looking

ahead, this new West sees its present population increasing by almost 30% in the next 10 years.

To help keep the West supplied with the energy required for future growth, El Paso Natural Gas Company is engaged in continuing and intensive programs to augment its large reserves of natural gas. In the past 10 years despite the tremendous increase in sales to El Paso's market, our committed reserves have increased over 100%. The rapid rise of these reserves is equalled only by the unparalleled upsurge in Western energy requirements.

Intensive exploration for, and acquisition of, natural gas reserves are just two of many El Paso activities designed to help serve the energy needs of the West.

El Paso and its subsidiaries operate a network of natural gas pipelines, the world's most efficient means of transportation. Other activities are conducted in exploration for and supply of petroleum, in refining, in the marketing of petroleum products, in the manufacture of petrochemicals—and in the search for and processing of uranium, a fuel of tomorrow.

*El Paso Natural Gas Company and its subsidiaries serve California, West Texas, Arizona, Idaho, Nevada, New Mexico, Oregon, Utah and Washington.*



---

EL PASO NATURAL GAS  COMPANY

---

# The Three-Way Stretch of Leverage on Common Stock of Electric Utilities

BRUCE HILDEBRANDT

**F**EATURED IN THIS STUDY of electric utilities are the end results of leverage on common stock. Only the basic figures revolving around leverage are highlighted. Not to distort a clear focus, all other figures have been kept to a minimum. To spreadeagle multiple details would obscure the forest for the trees, as is so often the case. A more comprehensive treatment would be at variance with the forthright approach sought in this analysis. Another primary aim of the study is to establish criteria for long-range investment decisions and not to attempt to time the shorter stock market swings.

## INCENTIVE FOR GROWTH

### NOT MISSING IN A REGULATED INDUSTRY

Electric utilities operate in a regulated industry. For the privilege of providing a vital service exclusively in a franchised area they are limited to earnings after income taxes for interest charges equivalent to about 6% of a rate base. This rate base consists largely of net plant at original cost when first devoted to public use. Such a rate base nowadays approximates total capitalization.

Regulation is permissive. It provides no assurance that an allowed rate of return can be maintained or even attained. Rising operating costs can cause the rate of return to slip unless there is a compensating rate increase. The regulatory lag in granting rate increases usually results in earnings falling below the allowed rate of return. For the growth company the lag in earnings below the allowed rate of return is of shorter duration, or not at all, since it is more expeditious in attaining a greater market saturation, which tends to lower cost per unit of volume in an industry of increasing returns. The growth company, then, grows up to its allowed rate of return in a shorter period. It could

even be leading its allowed rate of return. The more static company has a tendency to fall behind its allowed rate of return. This explains in part the popularity of the growth company in an industry limiting earnings to levels that would appear at first sight to offer no incentive for expansion.

With a regulatory ceiling on overall earnings the per cent earned on the common stock depends largely on the leverage provided by the proportion of fixed-payment capital and the rate paid for such capital. The higher the proportion of senior capital and the lower the rates paid for senior capital, the higher the common stock earnings will be. Conversely, the lower the proportion of senior capital and the higher the rates paid for senior capital, the lower the common stock earnings will be. Such leverage on the common stock is accentuated by changes in overall return. The interplay of these factors can be shown by means of what will be designated the Leverage Equation.

## THE LEVERAGE EQUATION

The Leverage Equation is a mathematical expression in the form of an exponential equation. It is derived by taking funded debt, preferred stock and common stock equity as component percentages of capitalization and equating them to capitalization. The resulting capitalization ratios are then multiplied by debt interest rate, preferred dividend rate, the rate earned on common stock equity and the overall rate of return on total capitalization, respectively. The four products in the leverage equation are then transposed and solved for the per cent earned on the common stock equity, as shown in the three steps set up below. The various items in the equation are given the symbols that follow.

% Funded Debt — FD × i — Interest Rate on Funded Debt  
 % Preferred Stock — PF × d — Dividend Rate on Preferred Stock  
 % Common Stock Equity — CE × e — Earning Rate on Common Stock Equity  
 % Total Capitalization — CA × r — Earning Rate on Total Capitalization

$$\begin{aligned} (FD \times i) + (PF \times d) + (CE \times e) &= (CA \times r) \\ (CE \times e) &= (CA \times r) - (FD \times i) - (PF \times d) \\ e &= \frac{(CA \times r) - (FD \times i) - (PF \times d)}{CE} \end{aligned}$$

Table Showing Results of Leverage Equation

(A) Debt Ratio & Interest Rate	(B) Pfd. Ratio and Dividend Rate	(C) Common Stock Equity Ratio	(D) Return on Common Based on An Overall Return of		
			5½%	6%	6½%
1. 50% — 3 1/4%	13% — 4 1/2%	37%	8.9%	10.3%	11.6%
2. 50% — 4%	13% — 5%	37%	7.7%	9.1%	10.4%
3. 60% — 3 1/4%	15% — 4 1/2%	25%	11.5%	13.5%	15.5%
4. 60% — 4%	15% — 5%	25%	9.4%	11.4%	13.5%



As derived from the leverage equation the scope of leverage is illustrated in the above table. A comparison of either items 1 and 3, or 2 and 4 will show the effect that changes in the proportion of fixed-payment capital have on common stock earnings. By comparing either items 1 and 2, or 3 and 4 it can be seen how common stock earnings are also affected by changes in the rates paid for senior capital. Deviations above or below a 6% overall return are amplified by leverage in the return on the common stock, as can be seen by reading across under column D in each of the four items in the table.

As long as the overall return exceeds the average rate paid on all fixed-payment capital, the common stock benefits from leverage. If the overall return were to fall below the average rate paid on all senior capital, leverage would then operate in reverse to the detriment of the common stock. This would be an unusual occurrence in the electric utility field, but with a continuance of higher money rates without prompt compensating increases in overall return, it could become a factor of increasing importance.

We have now seen how changes in the capitalization ratios, in the cost of senior capital, and in the overall return on total capitalization affect common stock earnings. The first is indicative of the conservativeness of financial management. The second reflects changes in money rates. The third is the result for the most part of the restrictiveness of regulatory authority, which differs from state to state. An attempt to show the interplay of all these factors in relation to the per cent earned on net plant and on common stock market value over a period of years is tabulated in Tables III and IV.

#### RETURN ON ADDITIONAL CAPITAL DETERMINED BY CHANGES IN LEVERAGE EQUATION

Since overall earnings of electric utilities are limited to a percentage of the rate base, book value of the common stock equity is of considerable more importance than it is in unregulated equity investments where book value is to the informed investor an arbitrary bookkeeping figure bearing little relationship to market price. Increments in electric utility book value per common share are reflected over the years in higher market prices.

Retained earnings plowed back to finance growth will obviously increase book value and actual dollar earnings per common share. Yet a closer examination of the effects of leverage will show that even with retained earnings the per cent earned on the common equity as a whole can be lowered. It will be lowered, unless there is a matching sale of senior capital in at least as high a proportion and as low a cost as in the case of senior capital already outstanding in the capitalization, and unless the per cent earned on the additional capital committed is not less than the overall rate of return on the total capitalization previously outstanding. In other words, any reduction in leverage can lower the per cent earned on common stock equity despite retained earnings.

The same thing holds true in the sale of additional common stock. Additional common shares can dilute earnings per share (other than the temporary dilution due to the time lag in placing construction property in operation) by

cutting into the leverage already available on the outstanding common shares. Any change in capitalization affecting the proportion and cost of senior capital in relation to overall return on all capital must be watched for the three-way stretch it will have on the leverage for the common stock. It is well to carefully observe, therefore, the per cent earned on common stock book value, one of the most significant end-result indicators.

#### PAST PERFORMANCE AS A GUIDE IN EVALUATING GROWTH AND STATIC COMPANIES

The bench marks of investment analysis are established by comparisons. The usual practice is to compare an investment with others to measure whether and to what extent it differs from the norm. By comparing the past performance of various investments it can be determined which one shows the steepest upward slope in trend. With past performance as a guide we can get some indication of the future course. History may not repeat itself but patterns often do, despite the counter view that one can only be certain of the uncertainties in gauging the future.

By studying these patterns of the past, then, one can discern likely growth situations not yet too obvious to all. Analysis-by-parallel of a sizeable number of electric utilities can be rewarding. The growth experience of one company may be repeated in another, and occasionally does. For example, Florida Power after some seasoning has followed in the footsteps of Florida Power & Light, and Texas Utilities has been pursuing the same path as Houston Light- & Power.

Companies serving areas with below-average population growth as in New England have not done as well as the companies located in the Far West, Southwest and Southeast, where the major population trek has been to California, Nevada, Arizona, Texas, Louisiana, Florida and the Carolinas. Similarly, companies serving large metropolitan areas and not the new suburbs springing up on the periphery of large cities, have not shown the growth of those having the advantage of the big shift in population to the suburbs. The advantage of location appears to be well reflected in the common stock market price of growth companies.

#### AGGREGATE DOLLAR RETURN THE DETERMINING FACTOR

The growth company plows back a larger proportion of its common stock earnings than does the more static company. As a result, its common stock—discounting higher future earnings and dividends—sells at a relatively higher earnings multiple and lower yield basis than the common stock of the more static company. The investor must decide whether this lower current yield over a period of years will increase to a level that will more than compensate for the higher current yield obtainable from the more static company. It might be well to bear in mind that sometimes growth issues not only discount the future but even some of the hereafter.

Aggregate dollar return in the final analysis determines whether an investment is attractive. As used here aggregate dollar return consists of the sum of total dividends compounded quarterly at an assumed 4% annual return rate

**FLORIDA POWER CORPORATION—Table I**  
Common Stock Market Valuation Statistics

	Earned Per Common Sh.	Annual Dividend	Dividend Payout	Dividend Yield	Yield on 1947 Cost	Price × Earned	Market Price	Book Value	Market × Book
1947	\$1.57	\$1.00	64%	7.5%	7.5%	8.4×	13 1/4	\$12.24	1.08×
1948	1.62	1.00	62	7.6	7.5	8.1	13 1/8	12.77	1.03
1949	1.60	1.15	72	6.3	8.7	11.4	18 1/4	13.97	1.31
1950	1.64	1.20	73	7.0	9.0	10.4	17 1/8	14.32	1.20
1951	1.33	1.20	90	6.7	9.0	13.4	17 7/8	14.74	1.21
1952	1.80	1.20	67	5.0	9.0	13.4	24 1/8	16.36	1.47
1953	1.88	1.35	72	4.7	10.2	15.1	28 1/2	17.91	1.59
1954	2.22	1.52	68	4.3	11.4	16.1	35 5/8	18.41	1.93
1955	2.30	1.60	70	3.8	12.0	18.4	42 5/8	21.12	2.02
1956	2.86	1.65	58	3.2	12.4	18.0	51 1/2	22.41	2.30

**FLORIDA POWER CORPORATION—Table II**  
Gross Revenue Growth and Extent It Is Reflected in Common Stock Earnings

	Gross Reven. Growth Index	Earns. Index for Com. Stk.	Thou. Shares at Year end	Earns. Index Per Com. Sh.	% Reven. Carried Thru to Com. Stk.
1947	100	100	1,100	100	13.0%
1948	138	114	1,210	103	10.7
1949	138	135	1,452	102	12.7
1950	159	138	1,452	104	11.3
1951	184	119	1,547	85	8.4
1952	211	203	1,944	115	12.5
1953	242	253	2,326	120	13.6
1954	285	298	2,326	141	13.6
1955	321	340	2,558	147	13.8
1956	371	422	2,558	182	14.8

**FLORIDA POWER CORPORATION—Table III**  
Capitalization Ratios

	Total Capitalization	Funded Debt	Pfd. Stock	Common Stock and Surplus
1947	100%	61%	9%	30%
1948	100	60	14	26
1949	100	55	13	32
1950	100	51	18	31
1951	100	59	14	27
1952	100	58	13	29
1953	100	55	14	31
1954	100	57	15	28
1955	100	53	14	33
1956	100	57	13	30

**Aggregate Return on Investment in 100 Common Shares  
of Florida Power Held for Ten Years**

Assumed Purchase of 100 Shares at 17 3/8 at year end of 1956	\$1,737	
Total Dividends Received	\$1,285	26.0%
4% Return on Dividends (Compounded quarterly)	255	5.1
Increase in Market Price	3,413	68.9
Aggregate Dollar Return	\$4,953	100.0%
Aggregate Dollar Return As % of Purchase Price	285%	

**FLORIDA POWER CORPORATION—Table IV**  
Leverage on Common Stock

Per Cent Breakdown of Earnings on Capitalization

	% Earned on Net Plant	% Earned on Capitalization	% Paid on Debt	% Paid on Pfd.	% Earned on Com. Equity	% Earned on Market Value
1947	6.8%	6.68%	3.98%	4.00%	12.9%	11.8%
1948	6.6	5.63	2.90	3.79	12.7	12.3
1949	6.7	6.18	3.45	4.45	11.5	8.8
1950	5.7	5.85	3.33	3.29	11.5	9.6
1951	4.7	4.66	2.68	4.49	9.0	7.4
1952	5.2	5.04	2.08	4.92	11.1	7.5
1953	5.3	5.07	2.31	4.03	10.5	6.6
1954	5.8	5.53	2.74	4.18	12.0	6.2
1955	5.6	5.74	2.92	4.48	10.8	5.4
1956	6.0	6.08	2.88	4.48	12.7	5.5



# **CONSOLIDATED EDISON COMPANY—Table I**

## **Common Stock Market Valuation Statistics**

	Earned Per Common Sh.	Annual Dividend	Dividend Payout	Dividend Yield	Yield on 1947 Cost	Price × Earned	Market Price	Book Value	Market × Book
1947	\$1.90	\$1.60	84%	7.4%	7.4%	11.3×	21 1/2	\$42.15	0.51×
1948	2.31	1.60	69	7.3	7.4	11.5	21 7/8	42.75	0.51
1949	2.22	1.60	72	5.8	7.4	12.4	27 5/8	43.50	0.64
1950	2.44	1.70	70	5.7	7.9	12.3	30	43.60	0.69
1951	2.26	2.00	88	5.9	9.3	14.9	33 5/8	35.35	0.95
1952	2.63	2.00	76	5.2	9.3	14.7	38 5/8	35.20	1.10
1953	2.94	2.30	78	5.6	10.7	13.9	40 7/8	35.50	1.15
1954	2.98	2.40	80	5.2	11.1	15.4	46 1/4	36.10	1.28
1955	3.12	2.40	77	5.1	11.1	15.1	47 3/8	45.20	1.05
1956	3.20	2.40	75	5.3	11.1	14.0	45	46.40	0.97

# **CONSOLIDATED EDISON COMPANY—Table II**

## **Gross Revenue Growth and Extent It Is Reflected in Common Stock Earnings**

	Gross Reven. Growth Index	Earns. Index for Com. Stk.	Thou. Shares at Year-end	Earns. Index Per Com. Sh.	% Reven. Carried Thru to Com. Stk.
1947	100%	100%	11,477	100%	6.5%
1948	110	122	11,477	121	7.2
1949	109	118	11,485	117	6.9
1950	117	136	12,164	128	7.5
1951	124	136	13,137	119	7.1
1952	130	164	13,499	138	8.2
1953	135	184	13,622	155	8.8
1954	141	187	13,680	157	8.6
1955	147	197	13,695	164	8.7
1956	155	200	13,705	168	8.4

# **CONSOLIDATED EDISON COMPANY—Table III**

## **Capitalization Ratios**

	Total Capitalization	Funded Debt	Pfd. Stock	Common Stock and Surplus
1947	100%	36%	19%	45%
1948	100	40	16	44
1949	100	42	15	43
1950	100	40	15	45
1951	100	42	14	44
1952	100	44	13	43
1953	100	44	13	43
1954	100	45	12	43
1955	100	47	12	41
1956	100	49	11	40

# **Aggregate Return on Investment in 100 Common Shares of Consolidated Edison Held for Ten Years**

Assumed Purchase of 100 Shares at 27 1/8 at year end of 1946	\$2,712	
Total Dividends Received	\$2,000	47.7%
4% Return on Dividends (Compounded quarterly)	399	9.6
Increase in Market Price	1,788	42.7
Aggregate Dollar Return	\$4,187	100.0%
Aggregate Dollar Return As % of Purchase Price	155%	

# **CONSOLIDATED EDISON COMPANY—Table IV**

## **Leverage on Common Stock**

### **Per Cent Breakdown of Earnings on Capitalization**

	% Earned on Net Plant	% Earned on Capitalization	% Paid on Debt	% Paid on Pfd.	% Earned on Com. Equity	% Earned on Market Value
1947	4.8%	4.66%	3.30%	5.47%	4.5%	8.8%
1948	4.5	4.46	2.78	5.87	5.4	10.5
1949	4.4	4.26	2.97	5.47	5.1	8.0
1950	4.4	4.53	3.00	5.47	5.6	8.1
1951	4.4	4.27	2.84	5.47	5.3	6.7
1952	4.7	4.65	2.91	5.47	6.1	6.8
1953	4.9	4.82	2.97	5.47	6.8	7.2
1954	5.0	4.90	3.03	5.47	6.7	6.4
1955	4.9	4.82	2.87	5.47	6.9	6.6
1956	4.9	4.77	2.93	5.47	6.9	7.1

from the time received as computed in an annuity, and whatever increase in market price from one year end to another over a selected period. While the growth company will usually show over the years progressively higher dividends, the static company as a rule will return relatively higher dividends in the earlier years than can be reinvested that much sooner, which is the reason for treating the quarterly dividends as an annuity. The payment of dividends, then, is not only a matter of how much, but also when paid.

To illustrate some of the points made in the study Florida Power Corporation and Consolidated Edison Company are used as examples of a growth company and a static company in the tables that accompany this article.

To maintain the calculation simple stock rights to subscribe to additional shares have not been taken into account. It has been assumed that such rights were exercised to subscribe to additional common shares, and that the commitment thus made became a separate investment. It is interesting to note, however, that 100 common shares of Florida Power Corporation held prior to July 23, 1947 would have

increased to 210 shares in ten years if all subscription rights had been exercised. Subscription rights on the basis of 1 new share for 10 shares held were offered in 1947, 1948, 1953 and 1955, and on the basis of 1 for 5 shares in 1949 and 1952. The cost of the 110 additional shares subscribed for would total \$2,492.

Table IV was designed primarily to show the broad effects of leverage on the common stock in relation to the return on both net plant and common stock market value without getting into involved calculations. For instance, the item designated "% Paid on Debt" represents the usual "Income Deductions" which include among other deductions a credit for interest charged to construction. As a consequence of such credit, the per cent paid for debt capital may appear low in some years. It may also appear low if interest has not been paid for the full year on a new issue outstanding at the end of the year. The same holds true for the per cent paid on preferred stock if some new issue is not outstanding for the full year. To make the complicated adjustments required for these factors would compound the confusion, and add little to what is being illustrated.

## When You Change Your Address

3

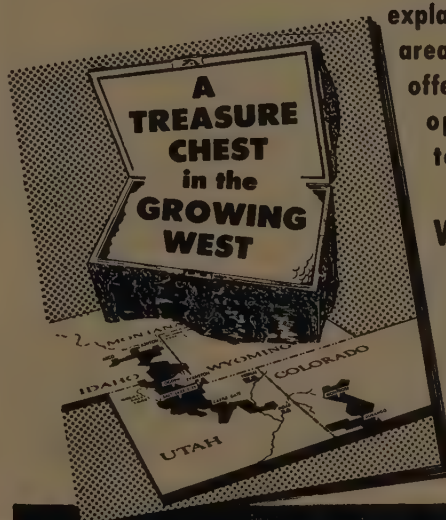
Please notify us promptly of your old as well as your new location. Otherwise an issue may miss you.

If your copy is addressed before your notice reaches us, it will be necessary for you to send us forwarding postage.

3

THE ANALYSTS JOURNAL  
444 MADISON AVE.  
NEW YORK 22, N. Y.

## AREA RESOURCES BOOK



explains why the  
area we serve  
offers so much  
opportunity  
to industry.

Write for  
**FREE  
COPY**

Box 899,  
Dept. G,  
Salt Lake  
City 10,  
Utah

**UTAH POWER  
& LIGHT CO.**

Serving in Utah - Idaho  
Colorado - Wyoming





In the "powerwealth" of St. Louis

About 20% of the shoes manufactured in the U. S. are produced by St. Louis firms.

## Union Electric produces seven times as much power as the whole U. S. leather industry uses

Total production of Union Electric in 1956: 7.4 billion K. W. H.

Average annual consumption of the U. S. leather industry is one billion ninety-five million K. W. H.

In this growing Midwestern area, industry thrives on Union Electric's great power-making capacity—so great now it could supply the needs of whole segments of American industry, and with even more capacity in the building stage for tomorrow's growth.

In just 10 years, scores of major new industries have located here. Among them: aircraft, automobiles, soap, special metals.

We invite you to investigate the "powerwealth" of St. Louis as a location for your business. Write to J. E. Johansen, Industrial Development Engineer, 315 N. 12th Blvd., St. Louis 1, Missouri. UNION ELECTRIC, comprising: Union Electric Company, Missouri Power & Light Co., Missouri Edison Co.

**PAST, PRESENT AND FUTURE**—How Union Electric has grown and is growing.

**5 YEARS AGO**—Union Electric produced 5.25 billion K. W. H. in 1951.

**TODAY**—Union Electric produced 7.4 billion K. W. H. in 1956, an increase of 40%.

**LOOKING AHEAD**—Construction under way or planned to increase capacity another 29% by 1960.

# Depreciation—A Dynamic Force

M. H. EARP

THE ROLE OF DEPRECIATION RESERVES as a dynamic force for economic and financial expansion has only recently begun to be recognized and partially understood. Its effect on the future demand for new corporate funds is not yet appreciated. The following presentation is offered as, at least, an approach to the problem.

To anyone schooled in traditional static economic and accounting principles, the orientation of the mind to dynamic concepts which are based on indefinite time periods is indeed a difficult task. At least, such has been my experience.

Evysey D. Domar's<sup>1</sup> position that depreciation reserves exceed replacement costs in a growing firm, industry or economy challenges intuitive reasoning. Does it not seem impossible when everyone knows that an asset cannot be depreciated for more than original book value? The logic of this truism is irrefutable except for the time consideration. For example, assume a firm purchases a \$10,000 piece of equipment each year for an indefinite number of years and uses a ten year straight-line depreciation schedule. As Table I shows, the arithmetical progression of the depreciation reserves at the end of the tenth year would be sufficient to replace the first piece of equipment, meet the annual investment requirements and purchase three additional units as well! Thus, in the eleventh year the annual cash flow would exceed replacement requirements because the \$1,000 per unit annual depreciation would be taken on fourteen pieces of equipment.

Table I  
Accumulation of Depreciation Reserves

	No. of Machines										Accumulated Depreciation
	1	2	3	4	5	6	7	8	9	10	
No.	1	X									\$ 1,000
	2	X	X								3,000
	3	X	X	X							6,000
of	4	X	X	X	X						10,000
	5	X	X	X	X	X					15,000
Years	6	X	X	X	X	X	X				21,000
	7	X	X	X	X	X	X	X			28,000
	8	X	X	X	X	X	X	X	X		36,000
	9	X	X	X	X	X	X	X	X	X	45,000
	10	X	X	X	X	X	X	X	X	X	55,000

The corporate sector of the American economy was selected as the empirical test of this dynamic theory. The decision to restrict the analysis was primarily influenced by the fact that corporate accounting closely approximates the given conceptual framework. In addition, extensive and relatively accurate data is available in this area. Consequently, the probability of the necessary assumptions do not leave doubt about the validity of the conclusion. While such considerations as the changing rates on which depreciation reserves are compounded, widely differing depreciation schedules and technological obsolescence must be taken into

account, the effect of inflation on replacement cost is the most important long term variable. Therefore, constant values can be assigned all factors other than price changes without vital loss.

From the early thirties to 1954, the Internal Revenue Service used Bulletin F as a guide for setting service lives with a straight-line depreciation schedule being the predominant accounting method. Since the general tax code revisions of 1954, more liberal write-off policies have been permitted and are generally being adopted.<sup>2</sup> Certificates of amortization also have reduced the average depreciation period. Because of these changes and the increasing proportion of new capital expenditures being allocated to equipment, the average life of corporate productive facilities is now thought to have declined to less than twenty years.<sup>3</sup> This figure is substantiated by the 1955 ratio of the book value of corporate fixed assets (\$300 billion) to corporate depreciation (\$15 billion).

The annual growth rate of the economy has approximated 4 per cent during the 1946-1955 decade. The Federal Reserve Board Index of Industrial Production has risen more than this while Gross National Product in real terms falls fractionally below. An annual increase of 3.9 per cent through 1965 would be required for Gross National Product to reach the \$489.0 billion estimated by the staff of the Joint Committee on the Economic Report.<sup>4</sup>

Plant and equipment prices rose at an annual rate of 5.9 per cent between 1946 and 1955.<sup>5</sup> Although the upward movement is continuous as is shown in Table II, the smaller rates of increase in the most recent years renders a projection of the 10 year trend untenable. Nevertheless, an inflation factor of 2 per cent would appear reasonable.

Table II  
Price Index for Structures and Equipment for  
Manufacturing Establishments

Year	Index (1947-100)	Year	Index (1947-100)
1946	85	1951	128
1947	100	1952	129
1948	109	1953	132
1949	111	1954	133
1950	115	1955	135

Source: *Survey of Current Business*, U. S. Department of Commerce.

The relationship of depreciation to investment is expressed mathematically as follows:

$$\frac{\text{Depreciation}}{\text{Annual Investment}} = \frac{1 - \frac{1}{(1+r)^m}}{rm}$$

where "r" is the rate of increase in investment in current dollars and "m" is the service life of plant and equipment. It is assumed that assets are retired at the end of service

1. Footnotes appear at end of article.



life and that the productivity of the assets does not diminish significantly until retirement.

Solving the equation with "r" given a value of 6 per cent and "m" a value of twenty years, depreciation would amount to 59 per cent of annual investment. Reference to Table III indicates that this figure is significantly below the ten

Table III  
Ratio of Depreciation to Investment

Year	New Corporate Plant and Equipment Expenditure		Corporate Depreciation		
	S.E.C. Estimates	Commerce Department Estimates	Commerce Department Estimates	As Ratio of S.E.C.	As Ratio of Commerce Department
	(In Billions)	(In Billions)	(In Billions)		
1946	\$14.8	\$12.5	\$ 4.2	.28	.34
1947	20.6	17.0	5.2	.25	.31
1948	22.1	18.8	6.2	.28	.33
1949	19.3	16.3	7.1	.37	.44
1950	20.6	16.9	7.8	.38	.46
1951	25.6	21.6	9.0	.35	.42
1952	26.5	22.4	10.4	.39	.46
1953	28.3	23.9	11.8	.42	.49
1954	26.8	22.4	13.3	.50	.59
1955	28.7	24.2	14.8	.52	.61

Sources: *Corporate Securities Offered for Cash*, Securities and Exchange Commission and *Survey of Current Business*, U. S. Department of Commerce.

year average. However, it closely approximates the 1954-1955 experience. The wide divergence seen in the 1946-1948 period reflects the very rapid rate of capital formation which followed World War II as well as the forced employment of productive facilities beyond their normal service lines, thereby raising "rm".

The replacement/investment relationship is more difficult to ascertain because of the vagueness of the available figures. One study reveals that over 25 per cent of the constant dollar purchases by manufacturing establishments from 1942 to 1945 have been net additions to the real value of structures and equipment.<sup>5\*</sup> The staff of the Joint Committee on the Economic Report estimates that replacement expenditures will be slightly above 40 per cent of total business expenditures on plant and equipment by 1965.<sup>6</sup> These percentages yield a range from \$7.2 billion to \$11.5 billion. Somewhere around \$8.0 billion is believed to be the closest approximation of reality.

Using \$8.0 billion as replacement cost and \$14.8 billion as depreciation during 1955, the replacement/depreciation ratio would be 0.54. Again giving "r" a value of 6 per cent and "m" a value of 20 years, the equation

$$\frac{\text{Replacement}}{\text{Depreciation}} = \frac{\text{rm}}{(1+r)^m - 1}$$

yields a ratio of 0.55, which is surprisingly accurate considering the roughness of the \$8.0 billion replacement cost figure. Of course, solving the equation from left to right would add support to the value being assigned "r" and "m".

If the relationships established above continue valid, then some notion of future external capital requirements is attainable. The three major sources of corporate funds for plant and equipment expenditures are net depreciation reserves, retained earnings and new corporate security offer-

ings. Therefore, determination of two of the variables gives the approximate value of the third as a residual when subtracted from the total.

Adding an average price increase of 2 per cent to the projected 4 per cent increase in real terms, Gross National Product in 1965 would total \$573.6 billion. This level of output would require around \$46 billion in new corporate plant and equipment expenditures. Depreciation charges would be expected to afford \$27.1 billion (59 per cent of investment as shown by the depreciation/investment equation). Undistributed corporate profits are expected to amount to \$14.8 billion,<sup>7</sup> assuming the dividend payout ratio does not change appreciably. Therefore, the corporate cash flow from depreciation and undistributed earnings would total \$41.9 billion.

With expenditures at \$46 billion and cash flow at almost \$42 billion the supply of new corporate security issues sold for the purpose of plant expansion is likely to be somewhere around \$4 billion. If this figure proves reasonably accurate, no significant additional pressure on the money market from this source is foreseen as net new corporate security offerings have exceeded \$5 billion in each year since 1951.

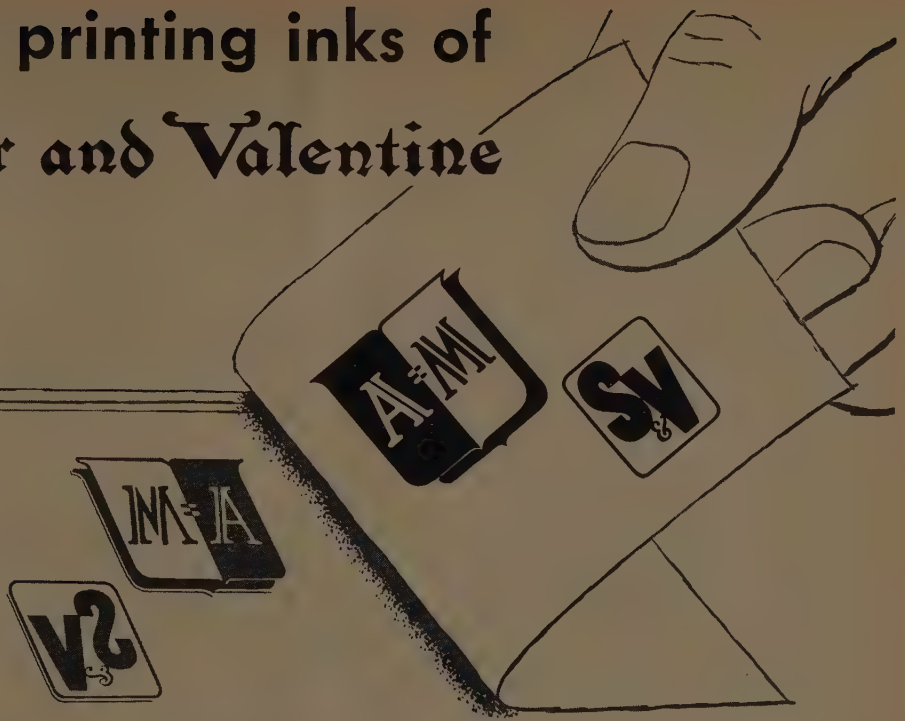
#### Footnotes

1. *Essays in the Theory of Economic Growth*, New York, Oxford University Press, 1957, p. 154 ff.
2. These include the declining balance method, the sum of the years-digit method, and any other method which does not exceed the total of such allowances as would have resulted from the use of the declining balance method during the first two thirds of the useful life of the property.
3. Joel Barlow, "Let's Make Sense in Our Depreciation Policies," *The Iron Age*, June 6, 1957, pp. 65-72.
4. Joint Committee on the Economic Report, 83rd Cong., 2nd Sess., *Potential Economic Growth of the United States During the Next Decade*, House Rept. No. 54175, Union Calendar No. 54 (Washington, 1954), p. 34.
5. It is interesting to note that in Domar's calculations, a 5.5 per cent annual rate of inflation would equalize replacement and a depreciation given a real growth rate of 4 per cent and a depreciation period of 20 years.
- 5\*. Donald G. Wooden and Robert C. Wasson, "Manufacturing Investment Since 1929 in Relation to Employment, Output and Income," *Survey of Current Business*, November 1956, p. 13.
6. Joint Committee on the Economic Report, *Potential Economic Growth of the United States During the Next Decade*, p. 34.
7. *Ibid*, p. 12.

#### Bibliography

- Barlow, Joel, "Let's Make Sense in Our Depreciation Policies," *The Iron Age*, June 6, 1957, pp. 65-72.
- "Corporate Financing," *Survey of Current Business*, September 1954, pp. 5-7.
- Domar, Evsey D., *Essays in the Theory of Economic Growth*, New York, Oxford University Press, 1957.
- Foss, Murray F., and Vito Natrella, "Business Anticipations of Capital Expenditures and Sales, 1957," *Survey of Current Business*, March 1957, pp. 5-10.
- Hellmuth, Jr., William F., "Depreciation and the 1954 Internal Revenue Code," *The Journal of Finance*, X, September, 1955, pp. 326-349.
- Joint Committee on the Economic Report, 83rd Cong., 2nd Sess., *Potential Economic Growth of the United States During the Next Decade*, House Rept. No. 54175 Union Calendar No. 54, Washington, 1954.
- McHugh, Loughlin F., "Financing Corporate Expansion in 1956," *Survey of Current Business*, October 1956, pp. 11-16.

# Famous printing inks of *Sinclair and Valentine*



## ...now part of the **AMERICAN-MARIETTA** family of products



### **PROGRESS REPORT MAILED ON REQUEST**

A concise report of American-Marietta's achievements during the nine months of its 1957 fiscal year. To obtain a copy, address Department 3.

The almost endless variety of fine printing inks produced by Sinclair and Valentine are known the world over. You'll find them rolling "smooth and sweet" wherever printing craftsmen ply their skilled trade to the thunder of multicolor presses. These precision-blended inks are preferred in the fast-growing packaging field, in publishing, and on every job where first-quality reproduction is essential.

On September ninth, the 48 plants of Sinclair and Valentine in the United States, Canada, Mexico, Cuba and Colombia joined the American-Marietta Company—adding another important member to the family of top-rated products that have made American-Marietta a leader in so many fields.

The honored name of Sinclair and Valentine, favorably known as a leading ink producer since 1890, will be retained. During the years ahead, you may expect continued growth and new technical advances in the skill of producing quality printing inks.



**AMERICAN-MARIETTA COMPANY**

101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS

*Revelations In Progress Through Modern Research*

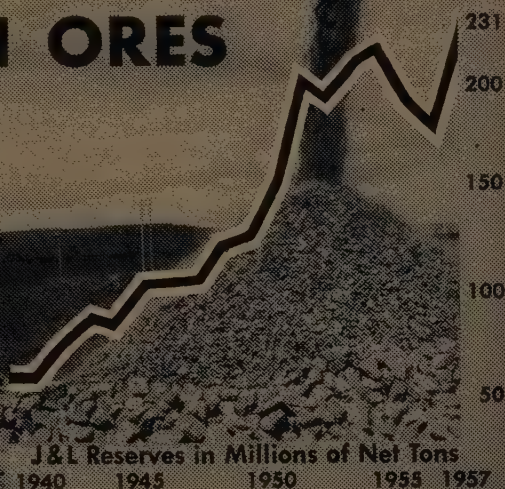
**PAINTS • INKS • RESINS • CHEMICALS • HOUSEHOLD PRODUCTS • BUILDING MATERIALS • CEMENT**





**STEEL**

## FATTENS LEAN ORES



*Benson Mines and Beneficiating Plant, Star Lake, New York. Production increased from 397,748 net tons of upgraded ore in the initial year of 1944 to 1,846,275 tons in 1956.*

Beneficiation—the fattening of lean ores—has paid off for J&L.

The process involves removal of the waste material to increase the relative iron mineral content of the remainder. It is expensive. But research has enabled J&L to find methods to do this job at a cost that can be offset by the savings in freight, fuel and operating efficiencies.

Coupling extensive research with exploration and acquisition, J&L has pushed its iron ore reserves to an all time high—all within the Great Lakes region of the United States and Canada.

J&L is today producing large tonnages of steel from beneficiated ores more economically than from high grade direct shipping ore. In 1956, 22% of J&L's entire ore requirements were obtained from ore processed at Benson Mines alone. The proven iron ore reserves stand at a total of 231 million net tons,

nearly 4 times the 59 million tons recorded in 1940.

The present ore reserve is equal to 44 years' supply based upon current usage. Of the 231 million net tons in total proven iron ore reserves, 78% are in ores subject to beneficiation. Total reserve figures do not include lean ore reserves owned in fee or held under lease in Michigan and Minnesota, which are estimated to contain 170 million net tons of concentrates.

In the search for accessible ore bodies and the continuous research for better methods of upgrading lean ores, J&L is conducting its beneficiation activities and explorations both alone and in joint ventures with other companies. This active program has resulted in the acquisition of 57 million net tons of additional reserves within the past year alone.

These extensive iron ore reserves, fortified by ample supplies of coal and limestone, give J&L an outstanding position in raw materials.



**Jones & Laughlin**

STEEL CORPORATION · PITTSBURGH

J & L . . . A G R E A T N A M E I N S T E E L

# What Are the Investment Objectives of Private Pension Plans?

ROBERT E. GREELEY

THE OBJECTIVES OF PENSION PLANS are determined by the motives behind the inauguration of non-discriminatory retiring of older workers.

Moral arguments for pension plans have included the "Human Depreciation" concept that "all industry, in the absence of adequate government programs, owes an obligation to workers to provide for maintenance of the human body in the form of medical and similar benefits and full depreciation in the form of old-age retirement in the same way as it does now for plant and machinery," as well as the idea that pensions are nothing more than deferred wages.

Social arguments are comprised of the progressive aging of our country's population, the declining percentage of the labor force engaged in farm employment, and the tendency towards maintaining a higher standard of living, together with a past period when wealth was more centered in the upper income groups and also a period when the depression diluted the savings of many individuals.

Economic arguments incorporated the fact that the non-productive segment of our labor force is growing, and that if part of current income is not invested for future support of those unable to work and care for themselves, then in future years a pay-as-you-go plan would be accomplished, taxing those currently employed at a rate sufficient to pay the annual cost of old-age support. If the latter plan is adopted, it will further be burdened by the population increases expected in 1960 and after, causing a larger percentage of non-workers to be supported by the work force.

After an actuary has determined the potential cost of a plan, the employer or union officers have the choice of insured plans with a relatively fixed cost, or self-administered plans. We shall consider the objectives of the latter, since they will have the problem of determining what to invest and why. We will not examine the life annuity type plan in our discussion of pension funds, since the premium paid, commingled with other life contracts, are subject to state regulations, and therefore are not relative in the problem of pension fund management in particular, but rather life insurance and annuities in general.

## BASIC DECISIONS

Trustees and administrators make basic decisions about the economy before deciding in what media to invest the pension fund's capital. These decisions should include the long run economic outlook; outlook for the business cycle; outlook for commodity prices; outlook for interest rates; and outlook for corporate profits. These will be necessary studies since the later decided investment objectives will depend on the determination of the prospect for each of these considerations.

Importance of each of the considerations varies. As a rule, long run economic outlook will reflect the environment in which the pension fund will exist, and, more important, interest rates and equity prices. During periods of economic growth, the price/earnings ratio of common stocks can be expected to increase, while during times of stagnation this price/earnings ratio ordinarily decreases. During an economic growth there is competition for debt fund which lowers bond prices and increases yields. A stagnate period idles funds, creates higher bond prices, and lowers yields.

Usually the business cycle is reflective of the potential fluctuation of equity prices and would determine the necessity of obtaining fixed obligations when compared with equity holdings which would tend to fluctuate with a business cycle. Magnitude and frequency of the business cycle would be a prime consideration in determining investment policy.

## PENSION PLANS ARE AFFECTED BY PRICES AND INTEREST RATES

Outlook for commodity prices will determine to some degree the effect of inflation, or deflation, on a pension plan. If commodity prices, which include wages, should increase, there is a tendency for those pension plans with fixed benefits to be liberalized through the practical consideration of being able to retire a superannuated employee at a satisfactory standard of living or having the union discuss this condition in a collective bargaining session. Commodity prices will also affect the equity portion of the investment portfolio, as this area of investment tends to best reflect an increase in the level of commodity prices over the long term.

Interest rates are important to the officers of a pension plan since the cost of the plan will be somewhat reflective of the level of interest rates. For example, over a thirty-year period the indicated yield produces the following contributions-earnings ratio:

Yield	Contributions	Earnings
2.00%	71%	27%
2.50	67	33
3.00	61	39
3.50	56	44
4.00	51	49

Conditions of corporate profits often reflect the market price of the common stocks of our portfolio, which in turn will be reflective of the price/earnings ratio. This will be high for periods of expected high corporate profits, and low for periods of expected low profits. Further, a high amount of profits, with earnings covering interest payments, sub-



stantially will increase the quality of our bond portfolio.

A decision on each of these areas will assist the investment manager in determining the near term objectives of the pension fund. However, the long term objective will be basically to achieve the maximum return on the capital apportioned the fund. This long term objective will be relatively inanimate, while the near term objective, as suggested in the previous five factors, will govern the selection of bond or stock purchases over the near term.

The long term objective, by its very nature, is concerned with the maximum rate of return, with little concern for the market prospects in either its ability to be sold or to receive initial value at any one point over this long term. All other factors of safety of principal, liquidity, and marketability succumb to the paramount need of the plan for maximum income.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 238), SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

THE ANALYSTS JOURNAL, published five times a year at New York, N. Y., for October 1, 1957.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher,

THE NATIONAL FEDERATION OF FINANCIAL ANALYSTS SOCIETIES, 444 Madison Avenue, New York 22, N. Y.

Editor, PIERRE R. BRETEY,  
25 Broad Street, New York 4, N. Y.

Managing Editor, HELEN SLADE,  
400 East 57th Street, New York 22, N. Y.

Business Manager, JOHN STEVENSON,  
60 Wall Street, New York 5, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

The National Federation of Financial Analysts Societies,  
444 Madison Avenue, New York 22, N. Y.

Gilbert H. Palmer, President, 623 Euclid Ave., Cleveland 14, Ohio.  
L. Hartley Smith, Executive Vice President, 632 S. Spring St.,  
Los Angeles 14, Calif.

George M. Hansen, Treasurer, 331 Auburndale Avenue,  
Auburndale 66, Mass.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are:

None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

JOHN STEVENSON,  
Business Manager

Sworn to and subscribed before me this 6th day of September, 1957.

ROSALIE F. McGLEW

Notary Public, State of New York.  
Qualified in Nassau County, No. 30-7833000.  
Certs. filed N. Y. Co. Clk. & Reg.  
Term expires March 30, 1958.

# Twofold Benefits from the ANALYSTS JOURNAL

1. Its timely articles by the nation's leading security analysts and economists keep you informed as to methods and trends in the security markets. You will be better able to present your company in its most favorable light if you know the trend of financial thinking as expressed in the official publication of the Security Analysts.
2. Its advertising pages provide a means of putting your story across to the Analysts. There is no more direct and effective way to contact this influential group of investment specialists than to advertise in their own Journal.

*To Keep Abreast of Investment Markets*

READ THE

## ANALYSTS JOURNAL



*To Keep Investment Markets  
Abreast of Your Company*

ADVERTISE IN THE

## ANALYSTS JOURNAL

THE ANALYSTS JOURNAL

444 MADISON AVE.

NEW YORK 22, N. Y.

Gentlemen:

- ☐ Please enter my subscription for one year at the subscription rate of \$5.00; foreign, \$5.50.
- ☐ Please send me your advertising brochure.

Name .....

Address .....

*Why all the activity in New England Electric?*

**ELECTRONICS  
AND ELECTRICITY  
MAKE  
PROFITABLE  
PARTNERS**

Plant a seed in fertile soil in a good climate, and watch it grow! New England's robust electronics industry is planning large scale expansions because electronics men like the arm's-length nearness of major markets, skilled workers, the best in research facilities, as well as good working and living conditions. All this contributes to the healthy industrial climate that is attracting more and more power-consuming industries of all types to New England Electric's service areas.

*All this means good living and profit to New Englanders  
—and profit, too, for the farsighted folks in other sections of  
the country who have investments in New England business  
and industry.*



**NEW ENGLAND ELECTRIC SYSTEM**





Another new 12,000-barrel Catalytic Reforming Unit is being added at one of Pure Oil's refineries

# Pure Oil rebuilds its four refineries to keep ahead of the Joneses' car

Since 1940, we have added \$140,000,000 worth of new refining equipment needed to make the modern fuels required by today's and tomorrow's cars

You *could* drive a 1957 car on 1940 gasoline, but you'd sure be breathing everybody's dust and paying some heavy repair bills.

That's the reason Pure Oil has been researching, testing and rebuilding to provide the increasingly complex fuels and lubricants needed for each new development in engine design.

Since 1940, we've put \$140,000,000 into our four refineries to keep ahead of improvements in your engine. And we've also built bigger: our refineries

today are turning out 6,854,564 gallons of oil products every day, against only 3,390,030 gallons back in 1940.

Despite all this, PURE scientists, production and refining experts are as hard at it as ever, because the cars of tomorrow are going to demand still better fuels and lubricants.

They'll be ready and waiting for you . . . wherever you see the "Be sure with PURE" sign.

THE PURE OIL COMPANY, 35 East Wacker Drive, Chicago 1, Illinois.



BE SURE WITH

PURE

# The Salesmanship Economy

LAMAR COFFIN

IN THE UNITED STATES TODAY, the number of production and transportation employees, those engaged in farming, mining, manufacturing, and transportation, form a minority of those gainfully employed. The American Economy has more clerical workers than farmers, more people engaged in selling and keeping books than in manufacturing, mining, and transportation. Technological advances in production and transportation efficiency have been largely offset by increased distribution costs. Efforts of the majority of employed Americans are engaged in selling and keeping books on one another, a condition similar to the Chinese Community where the people were employed by taking in one another's laundry.

The number of people engaged in distribution and its related indirect activities, compared to the smaller number of production and transportation employees, is *prima facie* evidence that this distribution system forms the greatest source of sheer economic waste and underemployment of the economy, and is the largest barrier to increases in the standard of living.

Present "salesmanship" economy bears little, if any, resemblance to a genuine free market or free enterprise economy. Economic theories of the law of supply and demand and the elasticity of demand in relation to price are completely reversed in large segments of the economy, for prices of products are raised, not lowered, to build up volume. The correct procedure of promoting a new cosmetic product, with a production cost of 10 cents per unit, would not be to price the product at 25 cents, which would doom the promotion to failure, but to establish a price of \$4.98, then utilize a large percentage of the proceeds to support heavy commercial propaganda and distribution burden, the theory being that heavy commercial propaganda and selling effort will "brain wash" the consumer into paying a fantastic price for something that should sell for a nominal price. A large section of the American Economy is based upon such "Alice in Wonderland" situations. If such situations, whereby 90 to 95% of the retail price of a product is absorbed by selling costs, forms a legitimate function in the American economy, and is necessary to provide employment and livelihoods, then prosperity could be increased by the mere expedient of legalizing the numbers, lottery, and slot machine "industries." Such legalization would provide employment for hundreds of thousands.

## SELLING EXPENSE FALLACIES

An economic fallacy built up in recent years is that heavier and heavier selling expense is necessary to create demand and to keep the "wheels of the economy" turning. The theory is for every company to put on a more aggressive selling campaign, with the net result that consumer buying is channeled from one product to another. As the other products, in order to protect their markets,

install aggressive selling campaigns, the final analysis is that the consumer obtains the same aggregate product, less the cost of the salesmanship, and distribution costs rise to new higher plateaus.

As the competition between products grows, the least essential products, coupled with aggressive selling efforts, begin to encroach upon the markets of basic necessities. Items such as bread are forced into the salesmanship cycle, resulting in the recent paradox of falling wheat prices and rising bread prices. The average American family will purchase the least essential items coupled with aggressive selling effort in preference to basic necessities without salesmanship. Examples where families are loaded down with "fixed costs" on pipe organs, the more expensive makes of automobiles, and like items purchased on the "budget plan" at the expense of food and the basic necessities exist by the millions. A variation of Gresham's Law applicable to the present salesmanship economy would be "The inferior product, coupled with salesmanship, will drive the superior product off the market."

Fundamental fallacy of this "salesmanship" reasoning is that the desire for goods and services is already present among consumers. This desire reaches fantastic limits and can never be satisfied. The basic ingredient missing to create demand is the ability to pay.

Under our current "salesmanship" economy, the efficiency rate of the average distribution facility to essential functions ranges from 1 to 10%. This absurdly low rate is not apparent because much "busy work" must be carried on, sales prospects cultivated, 20 to 30 prospects contacted to obtain a sizable order, new sales ideas such as "trading stamps" developed, and the one who hopes to be successful in this "salesmanship" economy must carry this "busy work" into his social life, which is dominated by this "career." The huge average department store markup of 60% on cost yields only a tiny net profit of from 1 to 3%, the balance being absorbed by selling burden. The retail sales barrier is only one hurdle. Aggressive sales effort is necessary to push the product through the numerous intermediate barriers, from the sales of initial raw materials and semi-manufactured goods to the manufacturer, to the sale of manufactured goods to distributors, wholesalers, retailers, and finally to the ultimate consumer. The "distribution pipeline" resembles a steeplechase, with the selling costs being pyramided all along the line. The total distribution and selling cost of an item is even more enormous than the economic and employment statistics indicate, as a large portion of the products costs results from hidden distribution costs. It is a great tribute to American Production Efficiency that enough products are able to pass over these numerous hurdles to maintain the present-day standard of living.

Only during War Periods, with price control, does the distribution system operate with a fair degree of efficiency.



During War Periods, the paradox occurs where the standard of living rises, more consumer goods are produced and sold, the rate of capital investment in production increases, the production base of the economy is expanded, at the same time that a large percentage of the gross national product is destroyed. A large portion of the war effort is produced from the reduction of sheer waste and inefficiency in distribution. War releases effective demand at the production level; this effective demand smashes through the numerous sales barriers in the distribution system; a sellers' market develops; salesmen cease to call; orders are placed by phone or allocations given; the heretofore all-important sales department withers away, one salesman obtaining the volume of 30 to 40 under normal conditions. Merchandise fringe services, "budget" plans, charge accounts are minimized; the problem is to obtain merchandise not selling; the distribution system automatically eliminates many of its unessential features and operates with a fair degree of efficiency.

#### THE RISE IN DISTRIBUTION COSTS

Upon the return of peace and with the removal of price controls a large profit inflation takes place for a short period in distribution, tremendous capital investment is made in stores, branch offices, regional warehouses, and millions of employees are added to the distribution payrolls. The higher retail prices and the small effective demand released at the level of production quickly absorb the accumulated purchasing power built up during the war years. As the effective demand released at production levels forms such a small fraction of the retail price, and as substantial portions of distribution costs cannot become effective demand until the sale is made to the ultimate consumer, a condition of high prices and sluggish demand develops, resulting in "over-production" and "heavy inventories." As prices cannot be reduced, due to the higher distribution plateau in costs developed during this period, a new campaign of aggressive salesmanship is resorted to, pushing distribution costs to higher plateaus. Demand is created for the time being, by having the consumer mortgage future earnings for current consumption. As the "fixed charges" become more and more unbearable upon the individual, wages must be increased, inflationary monetary policies must be set into effect, and a policy of constant wage-price spiral installed. Any demand created by wage increases at the production level is quickly dissipated by the pyramided price increases at the retail level, resulting in a fall in demand due to the reduced purchasing power of fixed-income groups. This reduced demand is countered by additional aggressive salesmanship and distribution costs mount to higher plateaus, forcing many of the smaller production units out of business, not because of inefficiency in production but because they become more and more marginal on the distribution level.

Even the technical efficiency of American Production cannot carry such a distribution burden and still provide a higher standard of living over a prolonged period. It would be wishful thinking to assume that the Soviets will not, in time, develop the technical processes of production to equal the American level. From this point on, it is a matter of

who has the greatest number in production as to who will win the economic battle. If the Soviets have three-fourths in production and one-fourth in distribution, and if we have one-third in production and two-thirds in distribution the outcome is clearly apparent.

It should be obvious to any realistic observer that this "salesmanship" economy is sapping the economic strength of the nation, that more and more are being used to sell what is produced by less and less. Millions of employees should be shifted from distribution into production; the problem is to effect this shift without wrecking the lives and careers of those involved in the shifting. As a majority of those engaged in distribution are fairly low paid and could be considered under-employed, such a shift would raise the economic standards of the overwhelming majority. The easiest way to accomplish such a shift would be the following measures:

Freeze prices at the retail level, with no price control at production level, simultaneously raising production level wages.

On certain low markup items, whereby a price freeze would result in a supply shortage, such as imported commodities, allow only a price increase to the extent of the production cost increase, rather than pyramided rises.

On items where the retail price bears little or no relation to its production and transportation cost enact a full disclosure law, similar to the SEC Act on securities, whereby the cost of production, quality, and so on are stated on the package or label.

When additional demand is created at the production level, without being offset by higher retail prices, an excess of aggregate demand over current production is created. This excess demand will in turn create additional production and additional demand, the production demand generator is started, and the realization of production creating its own demand will be achieved. This demand, released in substantial amounts before the products reach the retail shelves, will create somewhat of a War Economy, with the product of production going into consumer and capital goods rather than being destroyed. As the increased demand increases production, wages and raw materials will begin to rise in price, creating additional demand, and production will continue to expand to the point where the distribution system reaches its point of irreducible costs, and the price index begins to rise, the growth in production will begin to decrease. The more efficient producers will realize a profit inflation, thus attracting more and more capital into production, marginal producers will become efficient producers and new production units will spring up by the tens of thousands, absorbing the displaced distribution workers.

Inefficiency of distribution is so enormous that huge production price rises could be absorbed before the general price index begins to rise. With the development of efficient distribution the general price index may fall, in spite of higher raw material and wage costs. Such falling prices, if salesmanship is not resorted to, will release demand for other products. The elimination of much of this salesmanship will allow consumer preference to fall into natural

channels, and quality and product improvement will be facilitated.

It is extremely doubtful if essential distribution service would be reduced under such conditions. In fact, when the sheer waste is eliminated more costs could be allocated to the more essential functions. The retailer, instead of his net profit vanishing, may realize much larger profits; the small retailer would be on a more competitive footing than ever. Legitimate advertising may expand, allowing advertising mediums to forego Commercial Propaganda Accounts (advertising and selling costs disproportionate to production cost of product).

Eliminating distribution waste should begin with the curtailment of intermediate distribution organizations between the point of production and the point of distribution, whether maintained by distributors, jobbers, wholesalers, and so on, or by branch warehouses, offices, and so on, of manufacturing companies. This can be accomplished by a return to free enterprise and by the development of merchandise exchanges, similar to the organized commodity exchanges. There is no insurmountable reason why the major portion of production could not be traded and exchanged on organized merchandise exchanges, both actuals and futures. Product differences and brands could still be maintained, new models or product changes could be handled similar to new crop months, future production could be sold, hedging transactions made, speculators could perform useful risk bearing and arbitrage functions. Products could be purchased with the actual intent of accepting delivery, as exact specifications could be called for. By using small trading lots, retailers could purchase require-

ments directly through the exchange on the exact same footing as the large chain retailer. Odd-lot dealers could pool and handle smaller orders.

By having one physical transaction, shipments from factory to the retailer, and having purchases and sales handled by brokers through the merchandise exchanges, a major portion of the entire intermediate distribution organization between point of production and point of sale to ultimate consumer will be rendered superfluous. Such a change in the buying habits of retailers and the selling procedure of producers will in itself reduce distribution costs in an amount exceeding the entire direct labor costs of the products traded in. The manufacturer would receive cash; the retailer will pay cash, arranging for his working capital on the basis of negotiable receipts. The saving in keeping records and making invoices between the various intermediate distribution facilities would be several million employees. "July" Chevrolets and "October" Plymouths could become commonplace terms in conversation.

It is high time to direct attention to this distribution burden, and its effect on the economy. The technical efficiency of commerce has gone backward rather than forward during the last 50 years. The retail price freeze is the best method to force manufacturers and merchants into using efficient merchandising methods. By having a ready market for merchandise at a more or less fixed price, manufacturers and merchants would be forced to concentrate on elimination of distribution inefficiency. A higher standard of living, stable prices, and increased wages and salaries could result from the savings from the sheer waste in distribution.

## Newport News Shipbuilding and Dry Dock Company

### Quarterly Statement of Billings, Estimated Unbilled Balance of Major Contracts and Number of Employees

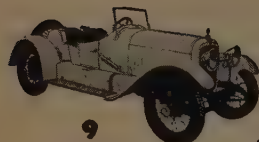
	Three Fiscal Months Ended		Nine Fiscal Months Ended	
Billings during the period:	Sept. 23, 1957	Sept. 24, 1956	Sept. 23, 1957	Sept. 24, 1956
Shipbuilding contracts . . . . .	\$21,739,441	\$14,840,534	\$71,995,871	\$54,053,199
Ship conversions and repairs . . . . .	8,027,118	6,685,651	28,300,313	14,306,738
Hydraulic turbines and accessories . . . . .	592,428	464,970	1,593,518	2,457,755
Other work and operations . . . . .	4,708,692	2,396,613	13,381,331	7,599,257
Totals . . . . .	<u>\$35,067,679</u>	<u>\$24,387,768</u>	<u>\$115,271,033</u>	<u>\$78,416,949</u>
Estimated balance of major contracts unbilled at the close of the period . . . . .	At September 23, 1957 \$489,659,587		At September 24, 1956 \$251,277,927	
Equivalent number of employees, on a 40-hour basis, working during the last week of the period . . . . .	12,450		12,146	

The Company reports income from long-term shipbuilding contracts on the percentage-of-completion basis; such income for any period will therefore vary from the billings on the contracts. Contract billings and estimated unbilled balances are subject to possible adjustments resulting from statutory and contractual provisions.

By Order of the Board of Directors  
R. I. FLETCHER, Financial Vice President

October 23, 1957





(A) how  
many of these  
famous old cars  
can you name?



(B) WHAT DID THEY  
ALL HAVE IN  
COMMON?



the correct answer to (B) is: **Thompson parts!**

**T**HOMPSON PRODUCTS has been making quality engine and chassis parts ever since the turn of the century. Below are some of the improve-

ments (each quite revolutionary) Thompson has contributed towards greater safety, power, economy and driving pleasure over the years:

The correct answers to (A) above are: 1—American (1902); 2—Brush Runabout (1908); 3—Maxwell (1909); 4—Hupmobile (1909); 5—Stevens-Duryea (1909); 6—Ford (1906); 7—Stutz (1914); 8—Abbott-Detroit (1917); 9—Mercer (1919); 10—Templar (1922). If you got two you're better than average. If you got all ten, our hat's off to a rare expert!

1904—Valve with nickel steel head welded to carbon steel stem • 1914—One-piece solid forged valve • 1916—Tubular steering parts • 1921—Silchrome heat-resistant valve • 1926—Eccentric tie rod for 4-wheel brake and balloon-tired cars • 1932—Wedge-action valve retainer lock • 1933—Duracrome valve seat insert • 1935—Dual-bearing tie rod for knee-action steering • 1938—Rotovalve—release-type valve rotator • 1946—Rotocap—positive-type valve rotator • 1952—Front suspension ball joint • 1954—Rotocoil valve rotator • 1955—TPN piston ring.

To those you can add scores of other important improvements in valves, pistons, piston rings, valve seat inserts, cylinder sleeves, steering and front end assemblies, and power-steering pumps. Thompson engineers and metallurgists work closely with leading automotive and aircraft

manufacturers to develop better parts. Thompson specializes in solving hard-to-solve problems... and in producing hard-to-make parts for all industry. If you're a manufacturer, *what's your problem?* Write: Thompson Products, Inc., General Offices, Cleveland 17, Ohio.

You can count on

**Thompson**  
**Products**

MANUFACTURERS OF AUTOMOTIVE, AIRCRAFT,  
INDUSTRIAL AND ELECTRONIC PRODUCTS.  
FACTORIES IN EIGHTEEN CITIES.

# Cars to Come

L. K. SILLCOX

THE LONG-RUN SOLUTION to the railway's problem of adequate earnings, and, hence, of the industry's continuing future as a private enterprise, depends upon retailing railway services and rates, item by item, to meet the realities of present-day competition. Total railway tonnage a generation ago presented no difficulty. The large rate-making task then resided in securing and maintaining favorable market and commodity relationships and, at the same time, obtaining adequate overall revenue. At the present time, rate-making has lost all of its former power to maintain market and commodity relationships. With unregulated highway-haulers easily available to every shipper or receiver of freight, and with toll-free, regulation free barge services also available to anyone within reach of a waterway, railway rate-makers (either on the railways or as members of regulatory commissions) simply cannot enforce what they believe ought to be in the way of rates. The rate-maker's task today has become vastly more complex than it was. He is required to know what the total available tonnage is of each commodity and this does not embrace mere railway tonnage but all of it. He needs to know exactly what his competition offers and what shippers will specifically accept with regard to time and money content for various movements.

For every dollar spent in 1955 by consumers for food, 8 cents went for transportation, according to a report issued by the United States Department of Agriculture. In comparison, transportation levied on consumers less than 6 cents of their food dollar in 1945. The proportion of the food dollar that goes to pay for transportation varies from one kind of food to another and from point to point, and also is predominantly greater for long hauls to market than for short ones. Railways try to reduce the difference between the rates charged for transporting a commodity that is brought into a market from several sources of supply. For example, the rate charged for shipping tomatoes from California to Boston is only about half again as much as the rate from Florida, although the distance is more than double. Hence, the carriers secure freight to haul which they might otherwise not get, distant producers are able to compete, and the supply everywhere is more ample and varied. As the retail price of a commodity goes down, the carrier's share, of course, becomes greater. For meat producers from a hog raised on a farm in Iowa, shipped to New York City in 1955, transportation cost 5.1 cents of each dollar of retail value of the pork. A year earlier, the transportation charge for a hog of the same weight and grade, and with the same shipping rates in effect, was 3.8 cents per retail dollar. This increase in proportion was due entirely to the slump in the retail price.

It follows, therefore, that a railway is an economic institution, designed to perform vital economic functions—it is a major economic tool of an industrial society. Viewed as an economic institution, the important fact about the

enterprise is that it is a collective. By necessity it requires a large, long-term capital investment and must continue to be productive for a considerable time before the investment is repaid. This is obvious in respect to the mechanical equipment, the buildings, machines, right-of-way, signals, terminals, etc. The "present" of industrial production is not a moment, a day or a year, but a long period, either that of the business cycle or that of the physical life of the property as a whole. Moreover, the future is as important in industrial production as the present. In industrial economics the present must always be focused on the future. The central fact of industrial economics is not "profit" but "loss"—not the expectation of ending up with a surplus, its justification, and the legitimacy of the claims to a share in it, but the inevitable and real risk of ending up with an impoverishing deficit, and the need, the absolute need, to avoid this loss by providing against the risks. An industrial system therefore has two kinds of costs; current costs—the "costs of doing business": payments for raw materials, wages, salaries, etc. The cost concept of the accountant is confined mainly to the visible and tangible costs of the present, the costs of resources such as material and labor actually used up in the productive process. It does not include, on the whole, the cost of the capital resources, material but also human, needed in the future to keep the enterprise productive. But the latter—the "costs of staying in business"—are the decisive ones.

For three decades the average return on railway investments has averaged only 3.6 per cent. Recently the Southern Pacific Co., had to pay 5.25 per cent to borrow first mortgage money for improvements, and other railways, at the same time, were forced to pay around 5 per cent to purchase equipment, but these were subject to a 52% discount for taxes, giving a net interest cost of perhaps 2 1/2% against this the average return on investment—if it could be assumed new equipment earns this 3.6 per cent. A large bank reported that the usual return for all manufacturing concerns is 15 per cent with some as high as 30 per cent. The average for mining and quarrying was set at 11.9 per cent, for retailing and wholesaling 11.1 per cent, for service and construction 12.3 per cent and it does seem that in all fairness railways should be more liberally treated. Development of a flexible and practical rate structure based upon accurate determination of railway costs, rather than upon "what the traffic will bear," poses one of the most pressing problems of our time since railways are not now a monopoly and must be kept vigorous to compete if they are to continue as free-enterprise institutions and not revert permanently to be used merely as a standby industry.

It may be mentioned in passing, that many railways have apparently concluded that they can realize their historical rate of return whether or not they buy new freight cars: that, in effect, new freight cars are not needed for them to "protect" their traffic. It is a fact that railways which feel



this way have been shrinking their car fleets at a rapid rate. On the other hand, those which ordinarily feel the need for replacing and expanding their fleets are reluctant because they fear they will not have use of these cars when they really need them in a shortage situation. And without being able to use them when they really need them, such railways would realize little return from these cars. The problem, then of furnishing financial incentive to railways to maintain an adequate supply of freight cars is a complex one. The lack of financial incentives traces largely to the complicated operating situation which fails to guarantee to an investing railway the fruits of its investment. A high per diem rate would furnish a form of such guarantee: there may be, of course, other ways of doing so. Until this basic dilemma is solved and proper financial incentive provided for owners of freight cars, the railway industry will continue to be plagued with an inadequate car supply both as to condition and numbers and hence stand to give inferior service to shippers. Against this background, the problem of finding the financial wherewithal to replace and expand car fleets, important as it may seem, is essentially a secondary issue. Unless the railway industry, as a whole, resolves to do an adequate job of replacement and expansion there may well be no shortage of funds.

Railway transportation, in the present-day sense, is a mass-production industry, but it is not now entirely set up on such a basis for the very reason that it was not originally developed as such and, under monopolistic conditions, did not require to be so, but these conditions are now entirely different. Since traffic competition has emerged because of a vast public-paid system of highway, waterway and airway routes, our railways must be supremely alert if they expect to stay in business against such unfair competition. They are required to support their needed investment and improvement program on compensatory rates such as will command the needed volume of traffic. Not only this, but their services must be satisfactory. In no other way can they expect to support their investment on privately-owned right-of-way and other fixed property which absorbs 20 cents or more out of every dollar taken in. It seems logical, therefore, and fundamentally needful that they should be free to price their services in such a manner as to exploit their economic competence at a profit. Under existing conditions they face handicaps and restrictions which, unfortunately, prevent them from achieving the effective competitive pricing of their services and make it almost impossible for them to compete for much of the traffic they are best fitted to handle.

It is never wise to wait until all of the conditions desired are met before trying to improve an operation, since this generally ends up in a do-nothing policy. There are many things which railway management can and should do to beneficially and aggressively modernize existing practice, save expense and improve service. The first and great step forward will be taken when railways realistically undertake to administer time within a frame-work of making their investment deliver specific results, planned in advance, and then forcefully supervised by top management with a sense of constructive discipline. To achieve such an end result a number of things must be kept in mind: (1) the human

element of incentive must somehow be brought into play in the outlook and response of everyone from the highest to the lowest rank: (2) the most modern facilities must be programmed and made available and then rigidly required to yield the planned results: (3) all train movements must be scheduled on a fixed time-content basis according to the tonnage demands anticipated by the traffic department and the latter must be held accountable for producing sufficient business to make the runs they require pay their way or else agree to drop them. Manufacturing and retailing are carried out successfully by having sales executives held accountable for forecasting production and fulfilling on their commitments. Operations are predicted with a view to complying with sales department timing, volume and cost needs in securing a maximum of profitable business. In order to gain a factual and up-to-the-minute idea of what shippers desire railways to do in order to enjoy their patronage, we show in Table I a summary of recent replies covering fifteen concerns doing a gross business of \$16 billions annually and employing 700,000 people. Thirty per cent of these concerns, by volume, are asking for Timed-Freight and more than a third of them are urging transportation by Piggyback. The vigorous application of these two features would result in recovering a great deal of traffic.

Because of the vast expansion and the dynamic growth we have experienced and the requirements of modern-day service which no one could foresee a half century ago or even a decade ago, it appears that there is need for some revision of the Interstate Commerce Act. During World War II we added \$20 billion of new manufacturing facilities to the \$30 billion worth of pre-war manufacturing plant and equipment. In each decade since then we have added \$10 billion of new facilities. The railways, with some \$1 billion a year, public utilities with \$3 to \$4 billions a year, other transportation, mining, and commercial enterprises with like capital investment have brought our total capital expenditures to some \$20 to \$30 billion during each of the post-war years. There are now 20 million more people engaged in civilian employment than the 46 million so engaged just before World War II. From every indication we are headed for the greatest of all advances in population. One of the interesting phenomena of the last two decades is that the intercity freight ton-miles for the five-year cycle 1950-54 averaged some 7,300 ton-miles per capita per year, compared with not quite 3,900 ton-miles per capita per year, for the five-year cycle 1935-39.

It takes between 420 and 450 tons of steel for every million dollars' worth of new highways. If total expenditures on all highway systems rise to \$11 billion a year, then it would require about 5.0 million tons of steel, seven times the amount used on the highways during 1954. This is metal actually used in construction and does not include that which is needed for trucks, tractors, earth-movers and other highway construction machinery. In addition, if railways are to be in a position to supply sufficient freight cars to handle the traffic coming to them during the next twenty years, they will require 2 million tons of steel each year to be allocated for this purpose. The steel industry expects to add 15 million tons to its capacity by 1959, so that more

Table I  
SHIPMENT MADE BY

Class of Concern	Gross Annual Sales (Million)	Total No. of Employees	Rail	Highway	Water	Pipeline	Comments
Dairy Products	\$ 88,	3,581	Supplies	Fluid Milk	-----	-----	None
Aluminum Mfg.	845,	53,000	Mostly by Rail	Emergency	-----	-----	Governed by Cost, Handling Expense, Timed Freight wanted badly.
Steel Mfg.	697,	41,100	84.63% in 1945 and 41.75%now	9.81% in 1945- and 39.76%now	5.76% in 1945 and 18.49%now	-----	Timed Freight is a must!
Oil Producer	6,272,	154,000	11.31% in 1946 and 4.34%now	16.29% in 1946 and 23.18%now	29.57%	42.91%	Cost governs.
Chemical Process	629, 629,	29,300	Raw Materials, Outbound too costly.	What water cannot handle outbound.	Outbound as much as possible	-----	Cost, handling expense and time governs.
Chemical Process	1,188,	70,000	85.4% in 1948 and 65.43%now	9.59% in 1948 and 27.76%now	6.81%	-----	Wants Piggyback service on a national basis.
Chemical Process	158,	10,009	-----	Cost governs	-----	-----	Wants Universal Piggyback Service
Rubber Mfg.	47,	2,981	All outbound Freight	All L. C. L.	-----	-----	Needs Timed Freight badly
Building Mtls.	249,	12,900	50% out-bound	50% out-bound	-----	-----	Cost and service not as good by rail as by truck
Air Conditioning Equip.	190,	9,200	45% out-bound 40% Inbound	55% out-bound 60% Inbound	-----	-----	Handling expense by rail too high. Wants Piggyback and Timed freight.
Machine Tool Bldr.	17,	1,500	Consolidates shipments with others in Area to go by Rail				
Elect. Fix. Mfg. (Est.)	40,	2,200	Inbound & Car-loads outbound	45% outbound	-----	-----	Wants Universal Piggyback service at once.
Aircraft Bldr.	854,	66,000	90% in and fly out	-----	-----	-----	None
Electrical Mfg.	4,884	334,848	75% Inbound 25% outbound	-----	-----	-----	Rates & Service go hand in hand. Piggyback need for plants no rail siding. Dependability by rail vital.
TOTAL \$16,138		790,579					

than half of this is already absorbed for the purposes just mentioned. Oil and gas pipelines will witness a steady growth as our energy requirements keep pace with our economy. We are closer each day to a realization of movement of solid materials, too, by pipeline, and coal movement by pipeline, or by conveyor belt, is no fantastic dream. Inland water transportation has been one of our fastest growing industries, and certainly has not yet reached its full potential. The completion of the St. Lawrence Seaway will bring far-reaching effects as is easy to foresee. Experts now estimate that air traffic volume will double within only a decade, and, in the past, such estimates have proved much too conservative.

#### RAILWAY FREIGHT CHARGES AFFECT PRICES

There is no escaping the conclusion that railway freight charges enter into the prices we pay for everything we eat, wear or use. Equally true, any inefficiencies or waste in the operation of the freight car fleet of the nation must be reflected in freight rates if the railways are to remain a free enterprise business. If freight car efficiency is to be high we must (1) load cars to the maximum, (2) they must be modern and constantly ready for use in a condition to dependably carry their lading in damage-free condition and (3) thereby, secure the greatest utilization possible, that is, obtain the fastest practicable turn-around time. If one day could be saved from the present turn-around time, the equivalent of 100,000 cars will be added to the supply of

cars. Each revenue service freight car in 1955 (1,700,000 railway owned and 300,000 privately owned total 2,000,000) carried an average of 23.0 revenue loads during the year. On the average, and ignoring non-revenue loads, 16 days were required for turn-around, and this is the total cycle from the time a car is placed for loading, through the time required for loading, movement, unloading, and placing for a new load, and including any time-out for repairs or other attention.

Empty-car mileage is a matter which needs to be very strongly challenged if we hope to reduce dead-time to a minimum. This, in the final analysis, means that every car movement must be carefully policed, and thought given to every available means of obtaining loaded-movement for cars in both directions. This can only be done at a price and it does seem justified. For instance, if all cars were uniformly and adequately maintained and this was strictly handled there should be no general question remaining as to whether any individual car was fit for the outbound lading offered, even though instances might occur where contamination by inbound lading was experienced because of the class of commodity, poor packaging or rough handling. It would immediately focus attention on the need for shippers to clean out cars they unload and to dispose of their dunnage, a present cause of much costly and time-consuming switching service. Since shippers demand clean cars from the railway, it ought to be the privilege of the railway to require unloaded cars to be clean in order that they may



be available for immediate reloading or in any event, in a position to charge for making such cars fit. Any improvement made in the utilization of equipment will necessitate widespread shipper cooperation and shippers, in the long run, would gain greatly thereby. Shippers hold cars overlong for billing or unloading and engage in the fearful practice of detaining loaded coal cars and cars loaded with lumber or perishables, for example, awaiting their market. All similar abuses added up to result in advancing the percentage of cars detained past free time from 15 per cent in 1952 to a present 25 per cent. This is an avoidable loss sufficient to wipe out any known car shortage that is, if all cars were released within their free time. Much loss of time as well as severe damage to cars could also be avoided through better defrosting means where frozen loads are now experienced and some real thinking could well be devoted to this, since delay from damage to cars subjected to excessive heat represents a problem of no small consequence. A classic example of the record of detention time is taken from the tables of the Boston and Maine Railroad, 1951-1956 inclusive. (See Table II).

Table II

DETENTION OF FREIGHT CARS IN NEW ENGLAND

Record of number of Cars Detained Over Free Time of 48 Hours by Receivers Actually Detaining Cars.			
Year	Cars on Hand	Cars Held over 48 Hours	Percentage of Detention
1951	69,576	24,841	35.7
1952	75,028	30,285	40.3
1953	80,803	35,050	43.5
1954	80,718	37,525	46.5
1955	117,515	58,188	47.8
1956	139,868	72,364	51.7

So far as empty car mileage is concerned, one factor has been the increasing use of specialized cars for the transportation of particular types of commodities—largely automotive parts—with a resulting increase in empty "back haul" movement. But a more important explanation of the decline in this ratio grows out of the needed payment of ever increasing "per diem charges" for the use of cars belonging to other railways. This means that every day a car belonging to the Illinois Central, for example, is moving over the New York Central whether loaded or empty, the charge—\$2.75—must be paid to the Illinois Central. As a result of the higher per diem rates it is expedient to send a foreign car home as soon as possible unless it is earning more than the per diem rate. In the absence of a high per diem charge these cars might be retained on the handling line, so that the result, in any event, is to increase the empty mileage. It is difficult, so long as we have independent lines to arrive at a per diem charge which would not be, on the one hand, an inducement to use the cars of other roads rather than build new ones, creating a shortage of cars for the nation as a whole; or, on the other hand, an incentive to send cars home either empty or loaded. Yet the abolition of the per diem charge is not feasible so long as we have

independent railway systems. The problem could be handled by a pooling of all railway cars or by the creation of an independent car company such as Pullman serves in the sleeping car field, from which the railways would rent their cars. But neither of these devices appears feasible since they would push up finally into a massive unified inefficient national transportation system.

MANAGEMENT AND LOADING PLANS

One of the weaknesses in effective management of loaded-freight cars is the absence of planning for loaded car performance. Until a railway can give the shipper the time of probable delivery of his car at destination on the face of his waybill there can never be the maximum of adequate intelligent control in shipper-railway policing the performance of revenue loads or shipments. The low average car-mile-per-freight-car-day is a challenge to modern management and until this is corrected by positive action, both on the part of the railways and shippers alike we can expect little improvement in train and terminal performance time all along the line. Based upon the most recent surveys carried for the year 1955, it shows that the best average speed for loaded cars was 4.57 units per hour, the poorest was 2.25 miles per hour and the average was 3.36 miles per hour. Too much stress has been placed on the increase accomplished in average freight train speeds which were 12.8 miles per hour in 1926-30 and now stand at 18.6 miles per hour when it is realized that loaded cars actually move faster when they are being switched than they do on the average. An important railway made an actual study on its system to determine the average time required to get a car to its final destination after arriving at its end terminal and this represented a delay of 2.4 days. Transit time is an important part of the expense of railway movement. When shipments are delayed in transit longer than needful on a scheduled basis on which the traffic must be solicited, the shipper suffers a direct loss not only through idle investment and demoralized planning but most regrettably by reason of business inconvenience. Loss and damage, another area of vulnerability to railway service, needs to be combatted in every possible manner. A lesson can be learned from the manner in which valuable highway traffic is successfully handled and which could be duplicated immediately by railways if only they would provide a nation-wide container (highway-trailer body) service.

If we assume that a proper incentive is furnished, and that the railways plan to do a serious job of replacing and expanding car fleets, the real problem is where the money is coming from. Certainly one of the major sources of cash flow should be depreciation and amortization write-offs, but the amounts obtainable from this source are inadequate. It can be clearly shown that there is a basic fallacy in write-off methods which rely upon original costs. The situation in the railway industry is no different than that faced by manufacturers. An example of how Thompson Products, Inc. plows back its income into the business before profits is included in their report.

It seems that in 1942 the company bought a lathe for \$12,000. Under federal tax laws, it was permitted to depreciate the cost of the lathe over a 14-year period. So, last year, when the lathe became obsolete, the company had

\$12,000 to buy a new one, plus \$1,000 which was the resale value of the old one. The story continues:

"But the replacement cost in 1956 was \$35,000 for a lathe that would perform the same functions as the old model, or \$67,000 for a new one with attachments to meet today's more exacting needs.

"The company had only \$13,000 to do a \$67,000 job. The difference of \$54,000 had to come out of profits, and in order to get that amount in 1956 the company had to earn a profit of more than \$112,500 before taxes, because \$54,000 was all there was left after the government took its corporate profit tax of 52%.

"And to earn that amount of profit, the company had to sell more than a million and a quarter dollars worth of products to customers. It took more than \$1,250,000 of sales to buy just one machine!

#### DEPRECIATION

Depreciation has been called many things. Among them: a non-cash cost, reserve for replacement, corporate savings, a reserve for re-investment, allowance for wear and tear and obsolescence. To be realistic, though, we should look at depreciation for what it really is:

Depreciation is a current cost of production, just as much as steel, wages and salaries, oil and water. It is, then, the cost of capital equipment used up in the operation of the property and the consumption of capital required to produce revenue.

Unless we are very careful about our ideas concerning depreciation, we get the wrong facts on which to base very important decisions. Understatement of depreciation results in charging less than the real cost against the revenue it helps to bring in. Prices may be too low. Retained earnings can be inadequate. Profits (and taxes) may be exaggerated.

It may be well in a discussion of depreciation and amortization as a source of cash to distinguish between write-offs for income tax purposes versus write-offs in the "books." A liberal policy for tax purposes, when allowed, generates additional cash in the form of tax payments deferred. This is not true, except in a very indirect sense, with respect to higher write-off for "book" purposes. Regardless of what is put on the books in accordance with I.C.C. accounting, the net cash inflow remains the same, and it is this net cash inflow which is important in connection with ability to make new investments. True, unless enough is written off on the "books" the net income of the company may be optimistically stated, giving rise to added demands for dividends from stockholders, but an alert management should be able to make its plans in accordance with realities and describe these realities to its stockholders. With respect to write-offs for tax purposes the railway industry should be grateful for the programs of the past 6 or 7 years which have allowed 5-year write-off of at least a part of their acquisitions during this period. Although the industry is no longer eligible for certificates of necessity, the changes in the 1954 tax law continued these tax concessions, at least, in part. It is not expected that we can hope for additional help from this quarter, that is, improvement in

future cash flow through more liberal tax treatment of write-offs. One possibility could conceivably be to push for more widespread adoption of the "roadway" method of accounting in a period of inflation such as this. This is the equivalent of the last-in-first-out method of pricing used by other industries with respect to inventories.

The government permits no re-valuation of assets for tax purposes according to a price index, although it is permitted abroad. All tax depreciation must be on the basis of the historical or original cost. The revenue authorities continue to make it tough to claim unusual obsolescence and get more rapid write-offs than normal. The industry must predict in advance that extraordinary obsolescence will be coming by reason of technological improvement, a difficult thing to do. Although the government will not allow adjustments for inflation for tax purposes, there is nothing to prevent a concern doing it for its own purposes. This can be carried out by determining how much its costs rise yearly to rebuild and re-equip. Then, all that is needed is to arrive at the average life of the assets (which need not be the same as that claimed for tax purposes). With those facts, it is a case of mathematically determining the factor by which the historical dollar must be multiplied to recover constant purchasing power. The steel industry figures its rate of inflation is 7 per cent, and that its facilities last 25 years, its multiplying factor is 2.15. If something along this line were done with regard to disposing of obsolete and out-dated freight cars, it would make it possible to keep them modernized out of earnings or justified rates.

Railway financial experts are wondering what action the Interstate Commerce Commission will take on accounting for rapid amortization. Since 1951, railways in common with other industries have been permitted to depreciate certain approved equipment and other facilities on a 5-year basis for tax purposes, rather than over the normal span of 20-years or more. The result is a reduced tax accrual currently, though the liability is only deferred until later years. Most companies show the larger annual depreciation expense in reports to stockholders but the railways, under I.C.C. regulations, deduct only the smaller, so-called normal or historical depreciation. Now the New York Stock Exchange and leading accountants have requested the I.C.C. to revise its rules in accordance with general and accepted practice, on the ground that stockholders may be confused by "overstated" earnings. In 1951-1955, the alleged overstatement of earnings averaged about \$240 million a year. If the New York Stock Exchange has its way reported earnings of many railways may be measurably scaled down but, at the same time, this policy will tend to stop the pyramiding of investment due to having to borrow money to replace facilities at current costs.

As a last resort, the additional funds which railways require for investment purposes must come from expanded—and hopefully more profitable operations, since this stands at the root of solving the problem of how to benefit competitively through better service and better pricing. To this, of course, should be automatically added gains in efficiency of all kinds, but particularly in utilization of equipment.

At the present time, the major airlines serving the United



Table III

Incoming	Amount (Million)	Per Cent	Outgoing	Amount (Million)	Per Cent
Net Earnings	\$ 162.6	27.1	Purchase of Property	\$ 486.3	80.9
Depreciation, Amortization	323.7	53.9	Increase in Working Capital (Net)	42.8	7.1
Sale of Stock	12.4	2.1	Interest and Preferred stock Dividends	29.1	4.8
Issuance of Debt (Net)	38.7	6.1	Common Stock Dividends	37.0	6.2
Property Retirements	63.1	10.5	Miscellaneous Uses	5.9	0.9
Miscellaneous Sources	2.5	0.3			
Total	\$ 601.1	100.0		\$ 601.0	100.0

States domestic routes have ordered whole fleets of costly turbo-prop and jet transports. Delivery of these planes is scheduled to start in 1959. Thus far commitments for new equipment by these common carriers are estimated at \$1.6 billion. Similarly heavy outlays will continue into the early 'sixties.' The net worth of all the certified domestic trunk airlines as of September 30th, 1956, amounted to \$570 million and as of the same date, their long-term debt came to only \$265.6 million. Under these conditions, concern might possibly be expressed, by any railway expert, as to how the airline carriers can finance such a huge new program of procurement such as mentioned above. Actually, close study of the financial status of the domestic trunk lines, with their fast write-off practice, reveals that they are prepared. Despite the burden of expenditures that the next few years will bring, stockholders of most of the carriers will suffer only slightly with respect to their existing equity. The airlines appear to be able to finance out of internal funds approximately half of the cost of acquiring their new and enlarged capacity in more modern planes, thus holding to a minimum the necessary additions to their present debt and outstanding stock. During the three years, 1953 through 1955, in which time the domestic airlines purchased nearly half a billion dollars' worth of equipment, they were able, nevertheless, to add over \$40 million to their net working capital and, it is important to observe, they raised (see Table III) only slightly over 10 per cent of the huge property investment by sale of stock and additions to their debt of the \$600 million in cash raised by domestic airlines in that period, net earnings, minus dividends and interest, contributed less than \$100 million. Nearly four times as much, however, was furnished by depreciation, amortization property retirements—principally sale of aircraft. During that period under consideration, sale of stock netted the airline carriers a little over \$12 million, less than 2 1/2 per cent of the price of their newly acquired tangible assets. Over \$113 million of new debt contributed, after repayments of out-

standing obligations, only about 7 per cent to that expansion. During the period to 1960 the same general pattern will doubtless prevail with annual depreciation and amortization charges probably exceeding those of the recent past. Already several carriers are flying four-engine craft that have been almost, or fully, depreciated. Accelerated amortization permits writing off up to 80 per cent of their cost in five years, as against the normal seven.

Heavier loading of freight cars is one of the most important means of making one car do the work of two, but it requires a detailed knowledge of what shippers must spend to carry this out, so that they may be given an incentive rate, beyond their actual expense, to encourage them in this practice. At 20 mph on level track it requires 460 lbs. of tractive effort to haul 50 tons in two cars weighing 21 tons each whereas the same tonnage carried in a single car absorbs 270 lbs. of tractive effort, a saving of 41 per cent. There has been a marked improvement in the dead weight carrying capacity ratio as cars of great load limits have found their way into service and the hauling capacity of motive power has likewise increased much more rapidly than proportionately to the additional weight necessitated to achieve it. There is not enough known, however, about the economics of operating expenses versus ownership of freight cars and locomotives. A thousand new freight cars may probably cost 8 million dollars or more at today's prices. The annual ownership cost of the thousand cars is then undoubtedly at least eight hundred thousand dollars or eight thousand dollars per unit in first cost and perhaps nine hundred dollars per unit per annum. It is here that we are brought face to face with the serious aspect of dealing properly with mass statistics since the mere addition of each thousand freight cars goes far beyond the cost of purchasing them. Without increased efficiency it means adding track and shop capacity and terminal and maintenance crews to take care of them. The average freight car capacity in 1955 was 53.8 tons while the average car load was

42.1 tons. If every car of carload traffic carried but one extra ton, 40,000 freight cars would be added to the available supply.

#### FREIGHT CARS AS CARRIERS

In order to gain some idea as regards what responsible railway officers feel the complement of freight cars should be, the following is submitted to show how the subject might be approached.

1. The volume of transportation in future years and its distribution among the several domestic intercity common carriers will depend upon technological developments which will also have a pronounced effect upon the amount and character of equipment the railways will need to carry their share of such traffic.

2. Railway ton-miles increased from 452 billion in 1926 to about 681 billion in 1955, but freight car ownership decreased from 2,689,000 in 1926 to 2,000,000 in 1955. Thus, railway freight car efficiency based on ton-miles per car owned increased by 86 per cent during this 29-year period, presumably owing to technological improvements in equipment, plant and operations.

If we compare 1939 with 1955 we find that the higher utilization expresses itself under the following categories:

<i>Ratio</i>	<i>Per Cent Increase 1955 over 1939</i>
Revenue ton-miles per net ton	5.9
Net-ton miles per loaded car mile	19.7
Loaded portion of total car-miles	3.5
Freight car-miles per serviceable car day	32.1
Serviceable portion of total cars on line	6.9
Revenue ton-miles per car on line	84.3

These are efficiency factors which must be measurably increased beyond the progress already attained if the prospective increase in future traffic is to be accommodated with less than a proportionate increase in freight cars on line.

3. A program based on population estimates of 190 million in 1965 and 218 million in 1975 (averages of Census Bureau estimates), together with an assumed increase of about 100 miles a year in ton-miles per capita, indicates 1,672 billion intercity ton-miles (1,680 billion figure arrived at independently by Dr. Charles F. Roos, p. 158 Centennial issue of *Railway Age*) will be handled by all carriers in 1965 and 2,136 billion in 1975. Railways handled about 48.8 per cent of the total in 1955 and that percentage of the estimated future traffic would give them 816 billion ton-miles in 1965 and 1,042 billion ton-miles in 1975 compared with 631 billion in 1955. To handle such a volume of freight traffic a car ownership of about 2,130,000 would be required in 1965 or 113,000 over 1955 and 2,340,000 in 1975 or 323,000 over 1955, including all cars, both railway and those privately owned.

4. Underlying these estimates we have assumed, in view of our study of the entire subject as above expressed, an increase, in the efficiency factors tabulated, as follows; 10 per cent by 1965 over 1955 and a 20 per cent increase by 1975 in miles per car per day, and 7 per cent by 1965 and 14 per cent by 1975 in tons per car.

5. What these estimates mean in terms of annual construction of freight cars is simply that, in addition to replacing cars retired each year, about 130 thousand new cars should be added to ownership by 1965 and another 210 thousand by 1975. In terms of annual increases these figures do not loom large but the more significant factor is that of annual retirements.

6. As of January 1, 1965 more than 650 thousand or well over one third of the total of Class I railway ownership were over 25 years old. Some 386 thousand of these were more than 30 years old. This figure taken as applying to privately owned cars as well shows that retirements may run somewhat greater than the 3.6 per cent annual rate suggested by the commonly accepted 28-year average life of freight cars or the 3.3 per cent rate based on a 30-year average life. A retirement rate of 4 per cent applied to the existing ownership of 2 million freight cars would create a need for replacing 80 thousand cars a year. As car utilization is improved the oldest cars will become surplus faster for earlier retirement. In order to reach the required increase of 130 thousand cars by 1965, an average of 93 thousand entirely new cars would have to be added each year. In order to meet the required increase of 210 thousand cars by 1975, the annual rate of entirely new cars in the second decade would reach 101 thousand cars. This would make a 20-year total of 1,940,000 entirely new cars. Since almost 2 million tons of new structural steel would be needed each year to protect the programs it appears reasonable to suggest that such a construction program should be planned ahead and uniformly spread, if it is hoped to secure the needed material and equipment as required.

7. Shippers' demands are changing and such a conservative estimate of retirement may not fit in with future needs. The type of cars required will have to be progressively adjusted to the changes demanded by shippers and changes in this area, such as the use of covered hopper cars in carrying grain, and many others, must be anticipated.

There is far more discussion with regard to the use of special designs of railway cars than the situation deserves. A great many traffic officers attempt to deflect attention from their shortcomings by demanding special equipment or special treatment to secure tonnage, the cost of which in many cases if carried out would render the traffic so gained profitless. If the plain box car is not satisfactory, the container plan (or trailer-container body) may be the answer. There will, however, always be a need for a few special types of cars, but this is not a large question. The essence of the whole problem is to be able to quote low compensatory rates, command mass movement of traffic on dependable rigidly adhered to schedules of agreed time-content. When traffic is handled on a reliable basis such a scheme will do more to lead business to the railways and cause freight cars to be worked intensively than anything else could do. A prompt start should be made to follow such a plan on a nation-wide basis. An administrative approach such as this would, with the most beneficial results, quickly squeeze bad time-consuming equipment out of the picture as being intolerable.

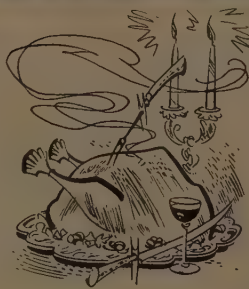


# your happy holiday begins here!



FOR THE GAS to cook your holiday dinner... for the oil or gas to bring cheerful warmth to your home... for the gasoline or diesel fuel to gather the family "home for the holidays," Texas Instruments crews constantly search the world over with skill and precision.

They send dynamite shock waves deep into the earth, measure changes in the earth's magnetic field, and note minute variations in the force of gravity. Gathered by Geophysical Service Inc., TI subsidiary and leading exploration contractor to petroleum companies, these seismic, magnetic and gravity findings form



the basis for the final drilling. As a further refinement, TI has developed *Seismation*... a technique for applying automatic data handling to the collecting and processing of geophysical information. *Seismation* application with instruments designed and produced by TI's Industrial Instrumentation division has increased

the efficiency of the world-wide search for oil.

This teamwork is typical of the depth of service Texas Instruments supplies you in the fields of oil exploration, electronics, optics, and military equipment.

## TEXAS INSTRUMENTS

INCORPORATED

keep an eye on TI



6000 LEMMON AVENUE  
DALLAS 9,  
TEXAS

# The Airline Challenge—Pitfall or Opportunity?

SELIG ALTSCHUL\*

IT IS ALWAYS A CHALLENGE to speak of the airline industry, and particularly so when appearing before this group—who have analyzed, dissected and ratioed the industry in ways known only to univac or some other electronic brain.

I welcome this opportunity to discuss the airlines with you, for they represent a dynamic force, vital to the nation's economy and general welfare. Moreover, they are dependent upon sustained and continued investment support. As with most investments, they contain the ingredients which can lead to pitfalls or opportunities. If anything, the airlines probably have more than their share of uncertainties. This is what does much toward making the airlines so interesting—and challenging.

The airlines have a tremendous growth factor. In 1956, the domestic trunks flew some 21.6 billion revenue passenger miles. This was up 12.7% over 1955, but 112% above the 10.2 billion revenue passenger miles of 1951 and 260% over the 6 billion mark of 1947. While the rate of growth has decreased and is not now of the more impressive 20 to 25% annual gains recorded by the industry in earlier years, a steady uptrend in airline travel remains strong and will continue. It must be remembered that with each succeeding year the base upon which the rate of growth is calculated becomes larger. Also, there is a tendency of the rate of growth to level off somewhat as the degree of penetration of the total market increases. Incidentally, there is a definite tapering off in coach traffic—the category representing the largest gains in recent years. For example, during 1956 air coach travel accounted for 35.7% of the total for the industry as a whole, virtually unchanged from the 34.9% participation of 1955. Of course, within the industry there are wide variations.

## TRAFFIC INCREASES AHEAD

Nevertheless, substantial traffic gains lie ahead. As forecast by the Civil Aeronautics Administration, domestic revenue passenger miles are expected to range from 32 billion to 38 billion for 1960. For 1965, this same source projects a range of from 42 to 56 billion and for 1970 anticipates a low of 52 billion to a high of 68 billion in revenue passenger miles.

There can be no doubt that the introduction of jet aircraft will represent an important factor in attracting more and more people to the air. The speed and comfort advantages alone will create new volume, particularly in the long-distance markets.

Operating earnings and net income, on the other hand, have not only fallen far short of matching the sharp traffic gains but have, in fact, gone into reverse, which is an ironic

phenomenon in a growth industry where rising volume is normally expected to bring leverage into play and exercise a favorable impact upon earnings. In other words, once the break-even point is reached, the bulk of subsequent increases in gross revenues is normally expected to flow through to net operating income. This has not happened in the air transport industry because of the continuing squeeze on profit margins.

Stated differently, the industry has had to generate substantial gains in gross merely to hold its ground in earnings. Last year, earnings actually declined in the face of an increase of almost 13% in passenger traffic.

Net operating income for 1956 was down about 18% to \$101 million from \$123 million for 1955. The squeeze on airline profit margins has been well publicized by the separate airlines in their individual 1956 annual reports and first quarter accounts for 1957. There is no need here to enumerate the various rising cost elements in the face of an unchanged fare structure. The fact remains that technological gains in the aeronautical art, which for years were able to absorb rising operating costs, simply cannot continue to overcome increased unit expenses.

On the contrary, technological improvements accomplishing increased economies simply are no longer operative in the same manner as in the past. Each new aircraft model, for example, in addition to representing an improvement in speed, range and comfort, also effected a reduction in seat-mile costs. This has been the story from the DC-3 on to the DC-4 and through the DC-6B series. With the DC-7 however, only gains in speed range and comfort were accomplished. Seat-mile costs for this model, the DC-7, reversed the previous trend and are higher than for the DC-6B.

## PASSENGER FARE INCREASE

Every trunk airline, without exception, wants higher fares. All but four have filed for an immediate 6% increase in the fare structure with a few fringe differences. This has become the Passenger Fare Increase Case, now before the CAB, which, under the agency's procedural steps, must be decided by October 1 next. Marking time is the General Passenger Fare Investigation Case, which was launched by the CAB last year with the implied objective of reducing fares. A final determination in this instance is unlikely before some time in 1958.

Considerable importance has been attached to these proceedings. An upward revision of fares is in order and should be granted. But, regardless how adjudicated, the CAB will be dealing with just one symptom in the Passenger Fare Increase Case, and not with the fundamental economic condition of the industry. It is an economic patchwork shaped throughout the course of years, unrelated in piecemeal regulatory moves.

For this reason, the regulatory aspects governing the

\*An address by Mr. Altschul before the 10th Annual Convention, National Federation of Financial Analysts Societies, Cleveland, Ohio, May 22, 1957, omitted in the Proceedings Issue.



position of the airlines is of over-riding importance and therein lies the key to the group's economic future.

The CAB is charged with the mandate to foster and encourage a strong civil air transportation system. It also has the responsibility of protecting the public interest. In wearing the public interest cloak, it is understandable where the board can become overzealous, probably as a result of prodding from Congressional committees and at times taking action which frequently runs contrary to the public interest. Throughout the years we have an almost unbending, never-changing attitude of the board toward the industry. A regulatory philosophy which was successful in 1938, and perhaps in the immediate post-war years, is not necessarily valid today. For example, the board was indeed correct in taking the separate airlines off of mail subsidies as soon as they became economically self-sufficient. And the airlines, themselves, were glad to be rid of subsidies as soon as possible.

But circumstances change and a rigid regulatory pattern applied to meet conditions which no longer pertain is, in the long run, contrary to the public's interest.

Very few elements in any industry remain static forever. For example, the monetary authorities kept the prime rate for money at  $1\frac{1}{2}\%$  from 1935 to December 26, 1947, when it went to  $1\frac{3}{4}\%$ . But it changed after twelve years, and it kept on changing with the needs of the times until it hit 4% last year. Now, if the monetary authorities saw fit to effect this tremendous change in the prime rate of money, a vital element in the country's financial structure, what about the need for change in the thinking of the regulatory authorities governing the airlines — a dynamic industry whose very essence epitomizes change?

No longer can the board conveniently compartmentalize each issue in a separate proceeding without regard to the over-all position of the industry as a whole. For example, during 1955 and 1956, in various route proceedings, the board certificated extensive new mileage, sharply intensifying competition within the industry. Those individual airlines who have been extended into new markets are, of course, pleased. Those carriers, however, who have had additional lines placed on their backs are naturally unhappy. But the fact remains that virtually all leading markets have service from a minimum of two, and frequently from three or more airlines. New York-Chicago is served by five carriers, and nine airlines operate between New York and Washington.

In making many of its new route awards, the board asserted that additional business would be created and little, if any, traffic diverted from established operations. This definitely has not been the case thus far. Traffic has been thinned out. In one or two cases, carriers enjoying certain equipment advantages have recorded sharp traffic gains taken out of the hides of competitors. As additional equipment is delivered and more schedules implemented on these new routes, even further competition will be brought into being.

This intensive competition does a number of things to an airline's capital requirements and operating budgets. It means that every carrier is determined to have enough equipment to hold on, at the very least, to its present posi-

tion over established route segments, plus attempting to carve out additional volume over its new extensions. It further means that sales and promotion efforts are being intensified. At the same time, the thinning out of traffic serves to reduce load factors. Hence, leverage in reverse begins to operate.

Instead of the highly controlled route patterns of the past, where, in some instances, semi-monopolistic conditions similar to the operating franchises of public utilities prevailed, we are having highly competitive forces unleashed where the airline certificate for its route value is becoming of diminished consequence. The traveling public may appear to be the immediate beneficiary. But I wonder. Multiplicity of service leads to additional congestion and delays at air traffic control centers and at airports. In many instances, the additional services seem to be provided at the expense of schedules from other routes. Further, in the long run, I question whether the lower load factors and lower degree of profitability resulting from multiple competition will provide a greater or a lesser improvement in equipment and service for the traveling public. The board, at one time, demonstrated a keen interest in strengthening the industry through mergers. Extensive new route awards throughout the industry are moves in the opposite direction and defeat the objectives envisioned by mergers. It is obvious that airline fares now have a natural tendency to be established in the competitive pits and will be set at the lowest possible levels to attract the most business consistent with profitable operations.

For this reason, among others, it is a little difficult to understand the rationale of the board's general passenger fare investigation, set in motion last year, for the obvious purpose of reducing fares.

#### FAIR RATE OF RETURN

Alleged excessive earnings realized on the investment by a number of trunk lines is the ascribed basis for the board action in starting the general passenger fare investigation and for staff resistance to the emergency 6% fare increase. This is not the forum to establish a fair rate of return on the investment for the airlines. But a number of facts are self-evident. In the first place, it is a serious mistake to place the airlines in the same regulatory framework as that of a monopolistic utility. The reasons for this contrast have been previously stated. Having most of the aspects of competitive industrial enterprises, an operating ratio measure is clearly more in order. This is particularly true in view of the narrow profit margins prevailing for the airlines. Incidentally, this was an approach I first advocated when I was with the board in 1941, and time has reinforced the correctness of this view.

Even the fair rate of return on the investment, if valid, as applied to the airlines is most fallacious. In the first place, the board is looking at results which are old and have changed considerably during the last year or so. More importantly, the board's staff, in computing rate of return, makes extensive disallowances in the investment base and in operating expenses. This may be fine as hindsight and in reducing every carrier to a common standard, but it is not the way in which the airlines are forced to operate

from day to day in the cold crucible of reality.

Certainly, today's circumstances differ sharply from the days when the domestic trunk airlines were on mail subsidy and the board was cast in the role of a Treasury watchdog.

In fact, most airlines were and remain just as anxious as the board to have removed themselves from subsidy. There was the strong motivation in the implied incentive that, once off subsidy, the 8-10% return on investment, which served as a ceiling on earnings, would be removed. The desire to broaden markets and competitive forces is the best assurance that the public will not be gouged. And the proof is there, as the average passenger fare has remained virtually unchanged during the past ten years in the face of sharply rising prices everywhere for services and commodities purchased in today's markets.

Administrative actions being effected by the board off to the side in a separate compartment are closely related and should influence determinations in the passenger fare proceedings or in any other regulatory matter before the board. One phase has been finalized with another being proposed. This has to do with the CAB prescribed Uniform System of Accounts which governs the manner in which the airlines keep their books. As of January 1, 1957, a number of significant changes were declared effective and will serve to remove a measure of flexibility in equipment programs and create tenuous earnings. More importantly, it will remove vital safeguards so essential to meet extraordinary situations, which occur in a technological changing industry, and which cannot be anticipated in advance. This is a highly technical subject which deserves much more time than is now available. Briefly, however, the major changes in accounting will now require the airlines to do the following:

1. Reflect the cost of an overhaul in the residual value of airframes and their attendant engines.
2. Cataloging flight equipment spare parts and assemblies into two categories. They may not be expensed or reserved for against loss due to obsolescence excepting under special approval from the board.
3. Establish a reserve for airframe maintenance, and such reserves are to be classified as "valuation reserves." This, incidentally, is not even good accounting.

These changes are regarded by many as interfering with managerial judgment and prerogatives. There can be no doubt as to their removing flexibility in effecting equipment transitions.

#### ECONOMIC REGULATIONS

Far more serious an intrusion into managerial prerogatives is a pending change in the economic regulations which would require the airlines, for accounting purposes, to increase residual values on aircraft from 10% to 15%, plus the cost of an overhaul, with depreciation on a straight-line basis over a period of seven years. This proposed change has not yet been declared effective. But the financial consequences are most serious, to say nothing of placing equipment transitions in a strait-jacket if this change is permitted to become operative.

For tax purposes, this proposed change would not apply, of course, where "quickie" write-off certificates have been received. But there is much equipment not covered by such amortization certificates and the Internal Revenue Service, in those instances, will follow the CAB uniform system of accounts. As a matter of fact, two airlines are now faced with such an interpretation by the Internal Revenue Service. A third carrier, operating at a loss last year, has voluntarily gone to a seven-year life with a 15% residual value for its aircraft.

Nor can the board shut its view as to the action of a sister government agency which has upset financing plans of the airlines in acquiring new aircraft.

Upon attaining the goal of 900 commercial transports previously determined as eligible for fast tax write-offs, the Office of Defense Mobilization, at the 1956 year-end, closed out the expansion program for this category along with four others associated with the national defense interest.

As a result, pending applications with the ODM, aggregating \$1.4 billion and covering almost 400 air transports, including most of the jets on order, will not be eligible for accelerated tax amortization. It is small wonder that the industry is strongly pressing for a reversal of the ODM decision.

Such accelerated tax amortization played a vital role in enabling the industry to embark upon an aggressive program of equipment expansion in keeping with national objectives. It is doubtful if the air carriers could have acquired the modern fleets they have without such a program. Under the provisions of the certificates of necessity granted for this purpose, the airlines are permitted to write off 80% of the cost of the aircraft in five years. Without this certificate, normal depreciation charges against a stated life of seven years would apply.

The fast write-off has been most helpful in adding to the "cash flow" of airline earnings and has made the financing of new equipment fleets possible. Capital formation from internal sources has immeasurably strengthened in this process and has been the bulwark attracting banking funds to the industry.

For example, in the three-year period 1953-1955, of the total \$601.1 million in funds generated some \$323.7 million, or almost 54%, were derived from depreciation and amortization charges. (It is important to note that not all of these charges were due to the quick write-off but such accelerated items played a significant part.) This largely facilitated the re-investment of \$486 million, or almost 81% of cash funds obtained from all sources, in the purchase of property, mostly aircraft. It is for this reason that new debt and capital stock financing were kept to a minimum.

With a tight money market, the internal self-generation of cash is more important today than ever before if the airlines are to finance new equipment acquisitions now believed to be in excess of \$2.5 billion.

And financing such capital funds through other means can be a formidable undertaking. Certainly new money—from banks or investors—may not be attracted as much of the protection afforded by the cash flow will be removed.

Nor can earnings be expected to fill the vacuum caused



by the removal of the rapid tax write-off. Subject to the caprice of narrow profit margins, earnings at best are now considered nominal. On the \$1.4 billion of new equipment on order and covered by these certificate applications, it is estimated that somewhere between \$20 to \$25 million annually, in a cash flow, is involved for the next five years. This would mean that these carriers would have to earn, before taxes, twice that amount additional each year, or between \$40 to \$50 million to offset the termination of certificates of necessity.

Logically, this could promote strong inflationary pressures in the fare structure. In other words, in order to offset the loss of the cash flow due to the rapid tax write-off abolition, fares would have to be increased to not only absorb rising costs but to compensate for the additional cash required.

The ending of the fast write-off could possibly lead to a curtailment and even cancellation of equipment purchase orders. And if denied the means of generating the necessary funds for such purposes, managements may be discouraged from embarking upon necessary expansions.

Considerable impairment of capital funds would result through overstated earnings as a result of the elimination of accelerated amortization. This would come about as replacement of equipment has been at progressive sharp increases in price. When the time arose to replace old equipment, it would be found that depreciation reserves were grossly inadequate. This phenomenon is even now most acute in the case of the local service airlines.

Moreover, rapid write-offs promote technological advances as there is a greater incentive to acquire newer and more modern aircraft by discarding "old" equipment that is completely depreciated on the books.

#### DEPRECIATION POLICY

As aircraft is written off through an accelerated depreciation policy and as expansion programs are completed, the

airlines will have reduced their future investment base against which charges may be assessed for tax credits. In other words, accelerated depreciation, in a broad measure, serves to defer taxes for payment to a future date. It is not uncommon to find substantial reserves for this purpose in the balance sheets of most of the domestic trunk airlines. Accordingly, accelerated amortization by no means is to be construed as a means of tax "forgiveness."

It is to the future that the regulatory authorities should set their sights as we all do in evaluating the position and outlook for any industry.

The capital demands of the airlines are indeed enormous. Capital budgets necessitated by the jet age keep on growing. Not only are aircraft involved but supporting facilities on the ground and in the air will require capital expenditures. The airlines will pay for many of these items directly, while other facilities and services will be absorbed in their operating costs. For example, in the new airways control plan, so essential to safety in the air, it is contemplated that the airlines will pay a users' charge. Enlarged airport accommodations for passengers are a must and higher rental charges in this area are inevitable.

About a year ago, in an address before the Wings Club in New York, I estimated United States airline capital expenditures at \$3 billion for the next ten years. This now appears on the low side. About half of this amount was projected in the form of new money: long-term debt, short-term bank loans and equity type securities. The balance is expected from retained earnings, cash throw-offs and proceeds from surplus aircraft sales.

I have spent considerable time in reviewing the regulatory side of the industry because of its impact on the current and future financial position of the airlines and their ability to meet the challenges of the future.

The economic facts of life are quite simple—the airlines must be permitted to develop earnings adequate to attract capital. And the airlines are in constant competition for money with other industries who also need capital but whose earning power is not inhibited by artificial restraints. What does it take to attract equity money? That is the base upon which the pyramid of new capital funds, long- and short-term debt, rests. The board ought to focus on that simple equation and many of its actions will take on a new perspective.

#### IMPORTANCE OF ENCOURAGEMENT

I am confident that the board, in the final analysis, is determined to follow its basic mandate as set forth in the Declaration of Policy of the Civil Aeronautics Act of 1938 and which is:

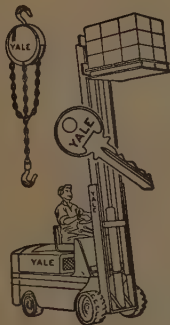
"The encouragement and development of an air transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense..."

Once this is done, we can anticipate the airlines coming into more of their own, both operationally and economically. And with an industry just bursting with growth potentials—intensified by the coming of the jets—the group may once again attract investment capital and achieve its proper destinies.

## YALE & TOWNE

**Declares 279th Dividend**

**37½¢ a Share**



On Nov. 20, 1957, dividend No. 279 of thirty-seven and one-half cents per share was declared by the Board of Directors out of past earnings, payable on Jan. 2, 1958, to stockholders of record at the close of business Dec. 12, 1957.

**WILLIAM H. MATHERS**  
Vice-President and Secretary

**THE YALE & TOWNE MANUFACTURING CO.**  
Cash dividends paid in every year since 1899

LAND USE • PUBLIC HEALTH • LAND RECLAMATION

CONSTRUCTION • TRANSPORTATION • EDUCATION



## WITH BETTER CROPS COMES A BETTER LIFE

Vast undeveloped agricultural resources of Latin America can provide the food demanded by the world's swiftly increasing population. Science meets the challenge with modern experimental stations dedicated to crop research and development.

Today's agricultural scientists working with United Fruit Company and subsidiaries, put the emphasis on improving indigenous crops, obtaining higher yield from rice, sugar, corn, bananas . . . on restoring nutrients to the soil and guarding against wind and water erosion or loss of soil moisture, by plowing under new cover crops like sorghum or beans.

By men of the Americas working together, the agriculture of Latin America is progressing rapidly . . . filling the needs of the people, increasing local government revenues, earning dollars for manufactures in world markets. It is a vital part of the Living Circle of trade and communication that unites the freedom-loving Americas.

**United Fruit Company**

General Offices: 80 Federal Street, Boston 10, Mass.



### THIS LIVING CIRCLE STRENGTHENS THE AMERICAS

United Fruit Company has been serving the Americas usefully for 57 years—reclaiming wasteland, stamping out disease, developing human skills, helping by research, new techniques and transportation, to increase the production and sale of bananas, sugar and other crops, and expediting communications.



## FINDING OIL IS NOT GUESS-WORK

EVERY WELL DRILLED does not produce oil. Even so, Sunray does not find oil by haphazard guess-work. Before the drill bit punctures the earth, weeks and oftentimes months are devoted to scientific study of leased areas.

THIS YEAR Sunray plans to spend over \$60,000,000 just to find oil. This "risk money" is set up in a carefully planned budget; and not one cent will be spent for drilling operations until the Company is certain that chances of getting oil are better than average.



Mike Vance, left, Sunray geologist in the eastern Oklahoma district, presenting a project idea to Ed Hutchinson, district geologist at the Tulsa general office.

EXPERIENCED MEN, as well as money is needed to find oil. It takes the team work of men who locate likely land to lease, geologists who make the first inspection, the geophysicist who evaluates the sub-surface structure of the land, the drafting board geologists who prepare maps and cross section views of the strata; then the engineers, drillers, roustabouts, pumpers, and many others do their work before the search for oil becomes a producing reality.

AFTER THE SCIENTISTS and field experts have made their reports, Sunray's management committee must make the final decision to drill. Members of this committee are experienced oil men, so when they give the word to drill they are usually right. Their decisions, in the past, have given Sunray a better-than-average record for getting more producing wells from the total number of wells drilled.

D-X is the brand name of quality products manufactured by D-X Sunray Oil Company, a wholly-owned subsidiary



**SUNRAY MID-CONTINENT**  
*Oil Company*

GENERAL OFFICES — SUNRAY BUILDING — TULSA, OKLAHOMA

## PUGET SOUND POWER & LIGHT COMPANY

### Common Stock Dividend No. 57

The Board of Directors has declared a dividend of 34c per share on Common Stock of Puget Sound Power & Light Company, payable November 15, 1957, to stockholders of record at the close of business October 24, 1957.

FRANK McLAUGHLIN  
President

## A regular quarterly dividend

of 30c per share has been declared by Daystrom, Inc. Checks will be mailed November 15 to shareholders of record October 28th.



## The American Metal Company, Limited

### COMMON STOCK Dividend No. 128

The Board of Directors has declared a dividend of Thirty cents (30¢) per share on the Common Stock payable December 2, 1957 to stockholders of record at the close of business on November 21, 1957.

D. J. DONAHUE,  
Treasurer.



## DIVIDEND NOTICE

The Board of Directors today declared the following dividends:

a 2 per cent common stock dividend, payable in common stock December 20, 1957 to stockholders of record at the close of business November 15, 1957  
60 cents per share on the Common Stock, payable December 16, 1957 to stockholders of record at the close of business November 15, 1957.

The Goodyear Tire & Rubber Co.  
By Arden E. Firestone,  
Secretary

November 4, 1957

THE GREATEST NAME IN RUBBER



*announcing* THE NEW

# DIAMOND GARDNER CORPORATION

*a merger of* THE DIAMOND MATCH COMPANY *and* THE GARDNER BOARD AND CARTON CO.

This merger, completed on October 31, 1957, comes as a natural step in the diversification of both companies, with distinct advantages to each. Long known as a leading manufacturer of matches, Diamond's production, today, includes lumber and lumber products, many woodenware items, and a wide range of molded pulp and paperboard products now accounting for the largest percentage of its operations. The company has an unbroken record of quarterly dividend payments since its organization 76 years ago . . . has forest reserves of over 376,000 acres . . . and reported sales in 1956 of \$134 million.

The 57-year-old Gardner Company is a producer of paperboard and cartons for more than 1600 important manufacturers and wholesale and retail merchants. Sales in 1956 were \$36 million. For many years much of the paperboard used to make and package Diamond matches has been supplied by Gardner. Both companies depend on the same source of raw material—the forests. The products of both companies, although entirely different, complement each other: Diamond in molded pulp; Gardner in paperboard.

Gardner's research has been responsible for many pioneering developments; Diamond's research has made steady progress toward full commercial utilization of wood fibers. The new corporation's able management, specialized technicians and sales personnel will contribute materially to its growth.

## important facts *about the new* DIAMOND GARDNER CORPORATION

Combined 1956 sales \$170 million.

Combined total assets \$141 million.

Combined working capital \$52 million.

A diversified business—approximately 47% of combined production in molded pulp and paperboard, 23% in retail yards and stores, 17% in matches and woodenware, 13% in lumber production and mill sales.

11,000 employees in 27 manufacturing plants, 10 sawmills, 88 retail stores and lumber yards.

A current \$32 million expansion and modernization program.

A dynamic growth potential in diversified forest products.

### SOME DIAMOND GARDNER PRODUCTS:



"Foodtainers"®—molded pulp containers for prepackaging meat and produce for America's 27,000 self-service markets.



Custom cartons—multi-colored packages for over 1600 customers in soap, tobacco, food, beverage, pharmaceutical and other industries.



Egg cartons—molded pulp and paperboard retail containers for egg packers, large and small.



Retail folding boxes.



Corrugated shipping containers.



Disposable paper plates, pie plates and cake circles.



Matches—all types of paper and wooden matches.



Lumber—wholesale and retail.



"Neet-Heet"®—self-starting charcoal briquet packages.



Woodenware—toothpicks, clothespins, ice cream confection sticks, etc.



Paperboard—53% of 150,000 tons annual capacity is used for cartons and folding boxes, the remainder sold as paperboard.



Containers for milk and dairy products, produced by an affiliate.



# Book Reviews

The suggestion has been made to substitute abstracts of the statements made before the Committee on Finance, United States Senate, last summer for the usual book reviews. This is because of the present wide interest in monetary impacts on stock prices. We hope readers will find value in this departure.

## Statement by

Secretary of the Treasury  
**GEORGE M. HUMPHREY**

Before Committee on Finance,  
United States Senate,  
Tuesday, June 18, 1957

The record of the past four years is one of a prospering America with new levels of high employment, of leisure growing from that prosperity, and enhancement in personal security. The number of life insurance policies increased 21 per cent to an estimated 265 millions in 1956 though they had been but 219 million in 1952, and persons covered by hospital insurance increased from 91 million to 112 million. Time deposits in banks and share accounts in savings and loan associations increased to about \$112 billion, and the estimated shareholders in American industry to 8½ million. The past four years has been a period of "unequalled investment." Moreover, an all-time high of \$152 billion has been spent on plant and equipment by business. These tremendous outlays brought about a heavy demand for borrowing.

The Government has endeavored to encourage the supply of goods and at the same time discourage excessive credit expansion. The threat of renewed inflation, which had been great in 1946 to 1952, began to be felt with rising prices. Inflation became our main problem.

Goals of the Administration were to prevent the growth of this inflation, to reduce deficits and meet the high cost of defense. It thought that "properly handled the burden of our inheritance of debt and obligations" with its threats to stability might be checked.

The 1957 budget was \$5.4 billion below that of 1953 and was but "16 per cent of our current gross national product, as compared with 21 per cent in 1953."

The Treasury has not the authority and tools to take monetary and credit action; this belongs to the Federal Reserve, whose courageous and de-

cisive course won for them the "wholehearted approval and admiration of the Treasury" in this recent period.

Throughout the decade prior to 1951 the Federal Reserve followed a policy of supporting the Government securities at or above par. It permitted the Government to sell its securities at a low interest cost but created an inflationary condition.

Post-war years have been characterized by greater price stability, although inflation was merely slowed, not halted.

High interest charges are brought about by a greater increase in demand for credit than in its supply. Banks are not specially benefited by high interest rates; in fact, their earnings for 1956 were less than those of manufacturing companies. Yet it is true that high interest rates encourage savings. Some people benefit from high rates while others find it adds to their costs. Like the cost of labor, it is a "two-sided coin."

After World War II came a credit-backed demand for goods which exceeded the supply. It was evident that the Federal Reserve stimulus to credit had better be curtailed, and the Federal Reserve began to "withdraw its support of Government bonds" in March of 1951. Then it became necessary to pursue a more vigorous policy to check inflation. And although new financing was less expensive and easier in 1954, later it became more costly. Loans to small businesses increased and their credit has been—although not always what they wanted—sizeable.

"The Federal Reserve's abandonment of its pegging of prices in the bond market has prevented an unlimited growth in credit." By intention it slowed the growth of bank credit and increased interest rates. As for interest rates being a burden on the taxpayer, the increase in interest on the public debt during the past four years amounts to less than \$5 per person.

Housing construction costs lie

largely in the hourly wage rates, which have risen 21 per cent in the past four years. In this and in farmers' costs, as well as in manufacturing, interest rates are a small part of the general cost.

Enterprise was encouraged and inflation slowed.

"We have encouraged a rapidly rising economy, which has brought more wealth, more purchasing power, more comfort, more jobs, more homes, more luxuries, more leisure, more education, and more security to our people than they have ever enjoyed before." Mr. Humphrey took "great pride in his report," as well he might.

## Statement by

Under Secretary of the Treasury  
**W. RANDOLPH BURGESS**

Before Committee on Finance,  
United States Senate,  
Monday, July 29, 1957

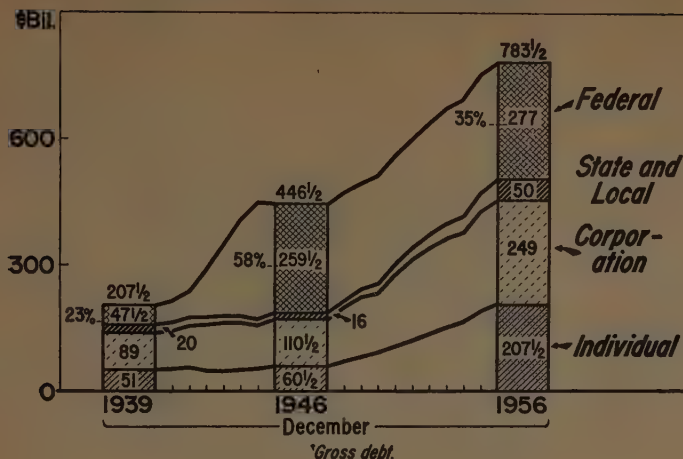
There have been important changes in the national debt in recent years. Its history is a reflection of wars, depression and changing financial policies. Before World War I it was \$1 billion. After World War II and Korea came a large defense program, with further deficit financing, and by December 1952 the debt stood at \$287½ billion. "Inherited deficits, which could only gradually be eliminated, brought the debt to an all-time seasonal peak of \$281 billion by the end of 1955." This past December it was down to \$277 billion. In addition to this our sound economic growth made the debt less burdensome.

Another way of looking at the public debt is in terms of its interest. By December 1956 the interest charge had risen to \$7.3 billion a year. During World War II interest rates were held at artificially low levels. The money used to pay the interest is collected in taxes. About as many people benefit as are hurt by them. As for the Government, the current average interest on the debt is not much higher than it was in 1916.

One should look at the Federal debt in relationship to the different kinds of debt in the United States. This is portrayed in the following chart and shows the proportional rise of the Federal, State, local and corporation debts.

For this period our national income has nearly doubled, "partly by infla-

## PUBLIC AND PRIVATE DEBT



Statement by

WM. MCCHESNEY MARTIN JR.,  
Chairman, Board of Governors,  
Federal Reserve System,

Before Committee on Finance,  
United States Senate,

August 13, 1957.

Our country has been experiencing a period of unusual prosperity, featured by heavy spending both governmental and private. Prices have risen while the purchasing power of the dollar has been falling.

Fiscal and monetary policies are interrelated; they are the tested means of fighting inflation. Credit policies ought to fit the general situation and foster economic growth, but price increases can be dangerous. Today's problem consists of inflationary increases in the cost of credit. When interest rates rise an attempt to create money for this deficiency would make it worse. Still it should not be overlooked that high interest rates frequently cause undesirable shifts. Better results may be obtained by encouraging savings, if possible.

Another result of high interest lies in the difficulty thereby created in obtaining loans. Moreover, large spending does not bring increased production. And any expectation of inflation reacts on the composition of savings. It encourages speculative commitments as well as the decision of what kind of things to buy. The threat of inflation can destroy savings. Inflation psychology has halting impacts on enterprise.

Productivity is the key to sustained prosperity, especially when it is coupled with sufficient savings to provide equipment for further progress.

As an element of cost interest rates add little, but they do reflect demand pressures. One recent result of inflation has been the attempt to crowd into this period a volume of investment greater than the economy could take. Upward pressures were established. It must be ever remembered that inflation affects all financial levels of society. This condition can be restrained only by a moderation in spending.

"There is no panacea, no magical means of assuring orderly economic growth." As a nation we have been spending more than we earn through production; we have invested at a rate faster than we save. "No greater tragedy, short of war, could befall the free world than to have our country surrender to the easy delusion that a little inflation, year after year, is either inevitable or tolerable."

tion and partly by real growth." The rise in corporate debt includes bank loans and accounts payable, as well as new corporate bonds and notes. "The pressure on the security markets of large demands for money is the major source of present problems in Treasury financing."

The individual debt rose from \$60½ billion to \$207½ billion during the last ten years. Much of this came from home mortgage and consumer debt. Thus it might be said that almost everybody except the Federal Government has been increasing his debt. The Federal debt is the largest single factor and has great impact on the country. Of major importance is the debt ownership.

Private nonbank investors have increased their holdings of Government securities. This is partly a reflection of Series E & H bonds during the past four years. Pension Funds also have bought Government securities.

The cheapest and easiest manner in which the Treasury can borrow is usually at short term. There is a large area in which to offer these bonds, and it does not strain the market. But it becomes undesirable beyond a certain amount. To increase the frequency of Treasury financing may be an irritant to the operation for short-term funds, and for corporate and municipal securities. A large volume of short term debt adds to the liquidity of banks. This can be an important source of Treasury borrowing. But it creates bank credit and increases the volume of money, which is inflationary. Therefore, war financing is better done by taxes.

During a war there is a reduced civilian borrowing. Post-war problems such as building and civilian borrowing bring different needs. In the

spring of 1953 "we began the sale of long-term bonds, at the interest necessary to sell them." In 1954 and 1955 there was progress towards the set objective by selling a large volume of intermediate-term securities. During the boom of 1956 and 1957 there were no new bonds sold.

One measure of the debt structure is the average time it takes the market to run to maturity. Another is the comparison between the floating debt on the one side and the longer term issues on the other, basing the figures on publicly held debt. The Treasury made progress in reducing the floating debt.

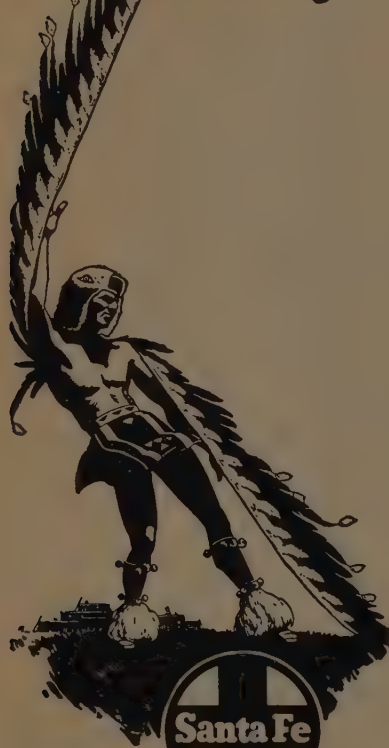
Though the record of savings bond sales for the four years 1953-56 was better than the average, they began to slow down about a year ago. The Treasury then "received from Congress authority to raise from 3 to 3¼ the all-over yield on E & H bonds if held to maturity." Savings bonds are sold for their security, not yield, although it is the best means of achieving a wider distribution of the debt as well as encouraging saving.

Treasury financing is most important in the money markets of the country. For this reason the Treasury must have full and accurate information before making decisions. One of the best indications of Treasury pricing of new issues is the record of the prices at which they have sold in the market the day when they were issued. This is usually about a week after the subscription books are closed.

Naturally the Treasury prefers to borrow at low rates. The Treasury never forces rates up. "It has always been our policy to sell our securities at the lowest interest rates at which the maturities offered can be sold."



A trip you'll  
always remember  
- a train  
you'll never forget



# Super Chief

...your carefree ride through  
the colorful Southwest Indian  
Country on the Super Chief ...  
with the Turquoise Room,  
famous private dining room.  
Daily departures from  
Chicago and Los Angeles.



R. T. Anderson, Gen'l Pass. Traffic Mgr.  
Santa Fe System Lines, Chicago 4

## CONSOLIDATED NATURAL GAS COMPANY

30 Rockefeller Plaza  
New York 20, N. Y.

DIVIDEND No. 39

THE BOARD OF DIRECTORS  
has this day declared a regular  
quarterly dividend of Forty-  
Seven and One-Half Cents  
(47½¢) per share on the capital  
stock of the Company, payable  
November 15, 1957 to stockholders  
of record at the close of business  
October 15, 1957.

R. E. PALMER, Secretary  
September 17, 1957



## THE DAYTON POWER AND LIGHT COMPANY

DAYTON, OHIO

141st Common Dividend

The Board of Directors has declared a  
regular quarterly dividend of 60c per  
share on the Common Stock of the  
Company, payable on December 2,  
1957 to stockholders of record at  
the close of business on November  
18, 1957.

GEORGE SELLERS, Secretary  
November 6, 1957



## THE FLINTKOTE COMPANY

New York 20, N. Y.

A quarterly dividend of \$1.00 per  
share has been declared on the  
\$4 Cumulative Preferred  
Stock payable December 15, 1957,  
to stockholders of record at the  
close of business November 20, 1957.

A quarterly dividend of \$.60 per  
share has been declared on the  
Common Stock\* payable De-  
cember 16, 1957, to stockholders  
of record at the close of business  
November 20, 1957.

A special stock dividend, has been  
declared, payable in Common  
Stock of the Company at the rate  
of 1 share of Common Stock  
for each 20 shares outstanding, pay-  
able December 16, 1957, to com-  
mon stockholders of record at the  
close of business November 20,  
1957. No cash dividend will be  
paid at this time on the 5% Com-  
mon Stock dividend here announced.

WILLIAM FEICK, JR., Treasurer  
November 6, 1957.

\*117th consecutive  
dividend

## IBM

171st CONSECUTIVE  
QUARTERLY DIVIDEND

STOCK DIVIDEND

The Board of Directors of  
International Business Ma-  
chines Corporation has today  
declared a quarterly cash divi-  
dend of \$.60 per share, pay-  
able December 10, 1957, to  
stockholders of record at the  
close of business on November  
13, 1957. The Board of Direc-  
tors also declared a 2½% stock  
dividend, payable January 28,  
1958, to stockholders of record  
on January 6, 1958.

C. V. BOULTON,  
Treasurer

590 Madison Avenue  
New York 22, N. Y.  
October 29, 1957



INTERNATIONAL  
BUSINESS MACHINES  
CORPORATION

## The DIAMOND MATCH COMPANY

76th CONSECUTIVE YEAR  
OF DIVIDENDS

The Board of Directors of The Diamond Match Company  
on September 26, 1957, declared a regular quarterly dividend  
of 45c per share on the Common Stock. At the same meeting the  
Board also declared a quarterly dividend of 37½c per  
share on the \$1.50 Cumulative Preferred Stock.

Both dividends are payable November 1,  
1957 to stockholders of record  
October 7, 1957

PERRY S. WOODS, Secretary and Treasurer

GROWING FOR THE FUTURE

MATCHES · PULP PRODUCTS · LUMBER · BUILDING SUPPLIES · WOODENWARE



# *Bulletin* from Pittsburgh Plate Glass Company



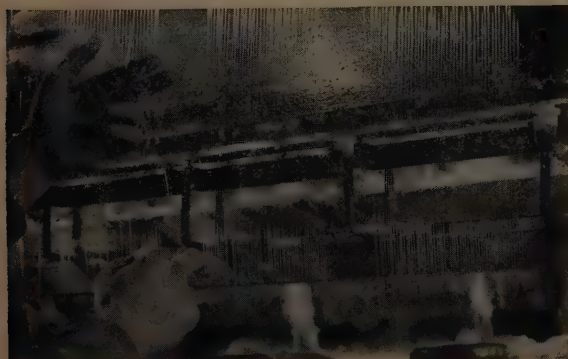
**New industrial coating gets good report.** Pittsburgh has developed DURACRON®, a new industrial coating enamel based on an unusual new series of thermo-setting acrylic resins. Pittsburgh chemists who prepared and tested it report that it looks and performs better than any other known baking enamel. It comes in a complete range of colors and is ideal for finishing household appliances and electrical equipment. DURACRON joins a list of paint products by Pittsburgh available for every interior and exterior use, both consumer and commercial.



**SPANDRELITE® makes hit in curtain-wall construction.** Miracles are being performed with SPANDRELITE heat-strengthened glass in the spandrels of glass curtain walls. Color is fused to the back of the glass by a new process that enables Pittsburgh to cover larger pieces faster. It's another advancement in Pittsburgh's exclusive service—a complete curtain wall *furnished and erected* by one source.



**More chlorine used in two new plants.** Columbia-Southern Chemical Corporation, a leading merchant producer of chlorine and Pittsburgh's wholly owned subsidiary, is setting new records in the production of chlorine. Besides many non-captive applications, chlorine is now being used by Columbia-Southern in its new titanium tetrachloride plant at Natrium, W. Va., for the chlorination of titanium-bearing ores. The new trichlorethylene plant at Barberton, Ohio, uses chlorine to produce superior industrial solvents.



**Fiber Glass excels in plastics reinforcement.** Pittsburgh Fiber Glass is being applied to thousands of plastic products, from auto bodies to furniture, from boat hulls to bath tubs, from glass fabrics to insulation. Pittsburgh makes Fiber Glass by drawing melted glass into continuous filament fibers. Pittsburgh supplies these fibers to the plastics industry in the form of roving and chopped strands. As new uses for plastics are found, Pittsburgh Fiber Glass will be ordered in increasing quantities by imaginative manufacturers.

*Pittsburgh Plate Glass Company branches and stores are located throughout the nation for prompt distribution of paints, glass, fiber glass, brushes and sundry products.*



## ROME CABLE CORPORATION

ROME, NEW YORK

### 74th Consecutive Dividend

The Board of Directors of Rome Cable Corporation has declared consecutive Dividend No. 74 for 35 cents per share on the Common Capital Stock of the Corporation, payable October 1, 1957, to holders of record at the close of business on September 16, 1957.

GERARD A. WEISS, Secretary  
Rome, N. Y., September 4, 1957

## Johns-Manville Corporation

### DIVIDEND



The Board of Directors declared a quarterly dividend of 50¢ per share on the Common Stock payable December 13, 1957, to holders of record December 2, 1957.

ROGER HACKNEY, Treasurer



## INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 157 of one dollar and seventy-five cents (\$1.75) per share on the preferred stock payable Dec. 2, 1957, to stockholders of record at the close of business on November 4, 1957.

GERARD J. EGER, Secretary



## INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 171 of fifty cents (50¢) per share on the common stock, payable January 15, 1958, to stockholders of record at the close of business on December 13, 1957.

GERARD J. EGER, Secretary

## The UNITED Corporation

The Board of Directors has declared dividends totaling 25 cents per share, payable December 16, 1957 to stockholders of record November 25, 1957.

Of the 25 cents per share, 15 cents per share is designated as a dividend paid from net investment income and 10 cents per share as a dividend paid from net realized gains on investments.

In June 1957 the Corporation paid a dividend of 10 cents per share from net investment income. Thus, total 1957 dividends will be 35 cents per share, the same as total 1956 dividends.

Of the 1957 dividends 25 cents per share is from net investment income and 10 cents per share from net realized gains. In 1956, 20 cents per share was from net investment income and 15 cents per share from net realized gains.

November 14, 1957.

WM. M. HICKEY, President

## P. Lorillard Company

AMERICA'S FIRST TOBACCO MERCHANTS • ESTABLISHED 1760

### DIVIDEND NOTICE



Dividend of \$1.75 per share on the Preferred Stock of P. Lorillard Company, which otherwise would be payable on the first business day in January, 1958, by way of anticipation has been declared payable December 20, 1957, to stockholders of record at the close of business December 2, 1957. A final dividend for the year 1957 of 30¢ per share, plus an extra dividend of 75¢ per share, on the outstanding Common Stock of P. Lorillard Company have been declared payable December 20, 1957, to stockholders of record at the close of business December 2, 1957. Checks will be mailed.

G. O. DAVIES, Treasurer  
New York, November 20, 1957.

### Cigarettes

#### OLD GOLD

Regular  
King Size  
Filter Kings

#### KENT

Regular  
King Size  
Crush-Proof Box

#### NEWPORT

Crush-Proof Box

#### EMBASSY

King Size

#### MURAD

HELMAR

### Smoking Tobaccos

BRIGGS  
UNION LEADER  
FRIENDS  
INDIA HOUSE

### Chewing Tobaccos

BEECH-NUT  
BAQPIPE  
HAVANA BLOSSOM

### Little Cigars

BETWEEN  
THE ACTS



## ALLEGHENY LUDLUM STEEL CORPORATION

PITTSBURGH, PENNA.

At a meeting of the Board of Directors of Allegheny Ludlum Steel Corporation held today, September 5, 1957, a dividend of fifty cents (\$0.50) per share was declared on the Common Stock of the Corporation, payable September 30, 1957, to Common Stockholders of record at the close of business on September 13, 1957.

S. A. McCASKEY, JR.  
Secretary



## GENERAL PORTLAND CEMENT COMPANY

### COMMON STOCK DIVIDEND

The Board of Directors of General Portland Cement Company has this day declared a dividend upon its Common Stock of 45 cents per share with respect to the quarter ending December 31, 1957, and a further year-end dividend of 50 cents per share, both payable December 13, 1957 to stockholders of record at the close of business on November 29, 1957. The stock transfer books will remain open.

HOWARD MILLER,  
November 14, 1957 Treasurer





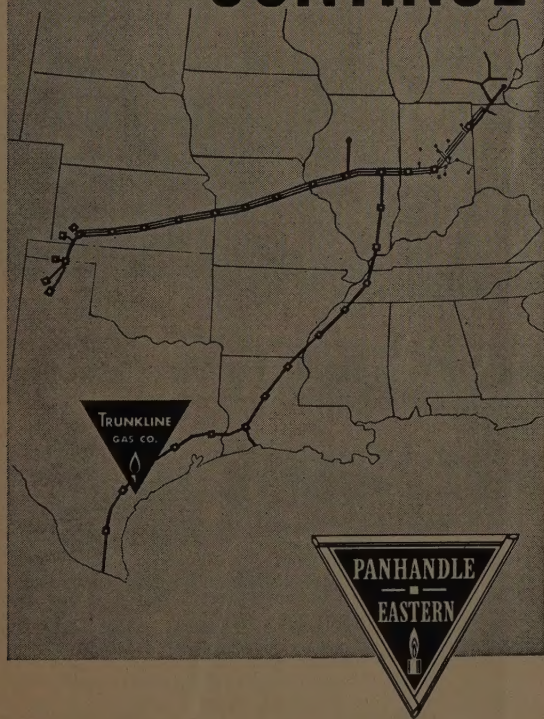
# THE SEARCH THAT MUST CONTINUE

Gas Distributors, industries and the consuming public have a common interest in being assured of a dependable future supply of natural gas.

The growth in the use of natural gas has been tremendous; interstate natural gas pipelines are now transporting over 8 trillion cubic feet of natural gas annually and trillions more are consumed intrastate.

Producers must search for and develop more than 12 trillion cubic feet of natural gas annually merely to maintain existing reserves of natural gas. Such a tremendous task requires proper incentives and freedom from burdensome Federal regulations. Congressional leaders, the Federal Power Commission and all branches of the natural gas industry — including the distributing companies — recognize this fact.

Proposed legislation, which will accomplish this important objective, is the Nation's best assurance of a continuing progressive natural gas industry.



**PANHANDLE EASTERN PIPE LINE COMPANY**

120 Broadway, New York 5, N. Y.

*Producer, processor, transporter, supplier of natural gas,  
serving industries and utilities in 12 states.*





## Head of his class— *but a problem in arithmetic*

Educating, feeding and clothing children present a problem in financial arithmetic for any family these days . . . a problem compounded when unforeseen emergencies call for extra dollars.

Helping to supply those dollars—the dollars to meet family needs or emergencies—is the big job that the Beneficial Finance System has been doing for 43 years.

Beneficial serves both large cities and small communities . . . has the largest number of small loan offices under single ownership.

Loans average approximately \$400 and the volume amounts to more than three-quarters of a billion dollars a year.

*. . . a BENEFICIAL loan is for a beneficial purpose.*



# Beneficial Finance Co.

Beneficial Building, Wilmington, Del.

MORE THAN 1000 OFFICES IN THE UNITED STATES, CANADA, HAWAII AND ALASKA





A welder joins sections of pipe line which will carry Barinas crude to market. Unlike practice in this country, in Venezuela pipe line is left above ground.

## Making History in Venezuela

Deep in the heart of Venezuela, Sinclair's persistence in the search for oil is reaping its reward. That nation's most remote oil field, the Barinas field, will soon send its first oil to market. The volume will about double the crude output of Sinclair's subsidiary, Venezuelan Petroleum Company.

For almost 30 years, Sinclair scoured the Barinas Basin. Its first well in '31 was dry, but exploration continued. Four years ago a wildcat well found oil. Subsequent wells did, too — enough oil to make practical the longest pipe line yet built in Venezuela. Now near completion, this large-diameter line is being built in conjunction with another com-

pany and runs 212 miles from Barinas to historic Puerto Cabello on the Caribbean.

The Barinas field is an important addition to the growing list of U.S., Canadian and Venezuelan fields brought to life under Sinclair's expanded crude production program.

# SINCLAIR

*A Great Name in Oil*





# RARE INDIUM

*makes airplane engine bearings 3 ways better*

You'll probably be hearing more about indium. Among the good reasons why are the properties this metal demonstrates in aircraft bearings. Indium increases the strength of bearings to begin with. Besides, it provides high resistance to corrosion. And it imparts to bearings a remarkable capacity to retain their protective oil film.

Indium is also used in dental alloys, in making transistors, for bonding glass-to-glass and glass-to-metal. As a gasoline additive, indium steps up efficiency and gives a cooler-running engine.

As recently as 1924, the entire world supply of indium was a matter of grams. It is not found in a native mineral state,

and metallurgical residues. In this recovery Anaconda has been a pioneer. By its patented process for extracting indium from zinc plant residues Anaconda, in 1956, produced 87,600 troy ounces of this relatively rare and versatile metal. Such developments have brought the price of indium way down—from several hundred dollars an ounce in 1930 to about \$2.25 today.

This leadership in indium research exemplifies Anaconda's role throughout the whole non-ferrous metal field. Anaconda offers industry the world's broadest combination of non-ferrous metals and metal products—and the most advanced technical help in using them

The  
**ANACONDA**  
Company

The American Brass Company  
Anaconda Wire & Cable Company  
Andes Copper Mining Company  
Chile Copper Company  
Greene Cananea Copper Company  
Anaconda Aluminum Company  
Anaconda Sales Company  
International Smelting and Refining Company